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TRANSFUSION REACTIONS AND THEIR TREATMENT, ESPECIALLY WITH THE ARTIFICIAL KIDNEY

Gurbuz M. Barlas, M.D.
and
Willem J. Kolff, M.D., Cleveland

Transfusions of incompatible blood caused severe reactions in 16 patients; 13 cases are described. The usual course consisted of three successive periods referred to as the acute, the oliguric, and the diuretic phases. In the acute phase many of the characteristic symptoms may be masked by anesthesia; watchfulness is therefore necessary, and recognition of symptoms has to be followed at once by cessation of the transfusion and treatment for shock. In the oliguric phase it was necessary to be on guard against overhydration, edema, hypertension, hyperpotassemia, acidosis, uremia, and infection (especially bronchopneumonia). Twelve of the patients in this series were treated with an artificial kidney and nine recovered. In six of them recovery would have been very difficult or impossible without the hemodialysis.

MUCH has been written about unusual causes for transfusion reactions—allergies,[1] pyrogens,[2] and rare blood groups [3]—but there is an understandable reluctance to write about the most common cause of trouble, simple incompatibility or mismatching of blood. Still, transfusion of incompatible blood is the cause of most so-called transfusion reactions; its occurrence is not rare. This paper outlines the treatment and reports our experiences, especially with dialysis, in the treatment of the acute renal failure that follows transfusion of incompatible blood.

Clinical Phases After a Transfusion Accident

It is convenient to consider three phases in acute renal failure: (1) acute reaction, (2) oliguric phase, and (3) diuretic phase.

Acute Reaction Phase.—Symptoms and signs of acute transfusion reactions can be listed as follows, but it should be remembered that anesthesia masks most of the symptoms: chill followed by fever, pain in the lumbar region, flushing of the face or cyanosis, substernal pain, headache, anxiety, nausea and vomiting, cough, rapid and shallow breathing, and distention of neck veins.

There may be symptoms of shock: hypotension, tachycardia, collapse, or prostration. Hemoglobinemia can be found if a blood sample is drawn and centrifuged within an hour or two after the accident. Jaundice usually follows and becomes evident in 3 to 24 hours. Hemoglobinuria can be

From the Department of Artificial Organs, The Cleveland Clinic Foundation, and The Frank E. Bunts Educational Institute. Dr. Barlas is now with the Edgewater Hospital, Chicago.

found at the early stage; it disappears within 24 hours when urinary suppression follows. During an operation (when anesthesia masks most symptoms), the most prominent sign may be bleeding from cut surfaces.

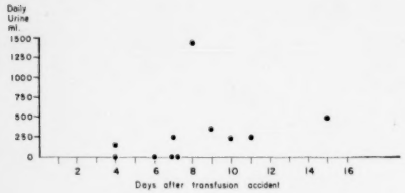

Fig. 1.—Days of oliguria prior to first dialysis and amount of urinary output during 24 hours preceding dialysis.

Oliguric Phase.—The urinary suppression leads to development of uremia. The clinical course greatly depends on the medical management of the patient during this phase. Overhydration leads to peripheral and pulmonary edema and hypertension. Hypertension may lead to convulsions. Even with optimum medical management, accumulation of retention products occurs, leading to mental changes, drowsiness, stupor, psychosis, or coma. Sudden death may occur even in the absence of potassium intoxication. The presence of serious injury, infection, ischemia, or necrosis of muscle precipitates rapid clinical deterioration (and requires early and frequent dialysis).

Diuretic Phase.—The beginning of the diuretic phase is arbitrarily chosen as the time when the urinary output reaches 1,500 ml. in 24 hours. The beginning of diuresis does not end the danger to the patient. Until sufficient tubular function has returned, a high urinary output does not guarantee adequate elimination of nitrogenous waste products or exclude electrolyte imbalance resulting from renal losses. Infections (resistant staphylococcus) and hypertension may still develop.

Acute Phase

Emergency Measures.—On the occurrence of any of the acute signs and symptoms listed above, transfusion should be discontinued immediately. The needle should remain in place for immediate treatment of shock if it develops. Intravenously given fluids, dextran, or compatible blood may be given. Arterenol may be required in addition.

To establish the diagnosis, the physician himself should draw blood from the patient, spin it for hemolysis, and have it cross-matched before his eyes with blood from the incriminated bottle. He should refuse to accept any previously used samples, to exclude the possibility of clerical error.

Specific Treatment.—Intravenous administration of a 5% solution of dextrose in water (2 liters) with 300 mEq. of sodium bicarbonate should be given immediately. This solution is designed to prevent blocking of the renal tubules with acid heme. This measure seems to be beneficial, but only when carried out immediately. It is harmful when renal shutdown has already been established.

Mannitol, 50 or 100 ml. of a 25% solution, may be administered in the hope of increasing urinary flow by osmotic diuresis. This perhaps is useful if given immediately.

Exsanguinotransfusion, according to French authors,[4] should be considered for reduction of free hemoglobin in the blood plasma. Only during the first hours after onset of hemolysis will the free hemoglobin in the plasma be effectively removed.

Oliguric Phase

Maintenance of Body Fluid.—During the oliguric phase insensible loss of water is replaced with at most 500 ml. of fluid per day. Fluid lost by vomiting, diarrhea, abdominal drainage, and whatever small volume of urine is excreted may also be replaced.[5] Even if this fluid restriction is adhered to, gradual overhydration takes place through the catabolism of tissue with release or formation of water. Water in food plus water of oxidation is at

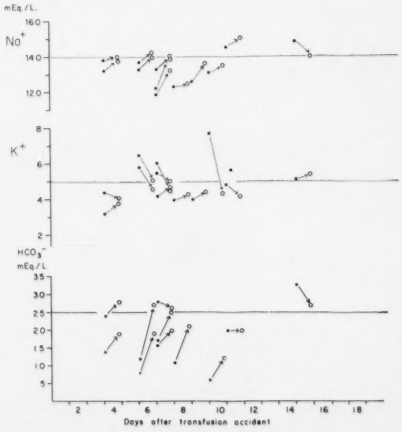

Fig. 2.—*Top*, serum Na^+ and K^+ levels, *bottom*, HCO_3^- level before and after dialysis. Each arrow indicates change of electrolyte level during dialysis.

least equal to the weight of the diet consumed. Daily body weights are important. As long as the patient is able to take fluids by mouth, he should not be given fluid intravenously except perhaps as

a vehicle for hypertonic dextrose or fructose. Intravenous infusions in patients with acute anuria carry the risk of acute pulmonary edema or convulsions.

If, during the oliguric phase, overhydration occurs with its dreaded sequelae of cardiac decompensation, hypertension, pulmonary edema, or convulsions, venesection is the most effective immediate remedy for an increased blood volume. During venesection, blood pressure must be measured since the withdrawal of 300 to 500 ml. of blood may be sufficient.

Removal of Edema Fluid.—Sodium sulfate, 45 Gm. in warm water taken by mouth, will retain 1,500 ml. of fluid to make an isotonic solution of 3.2% in the gastrointestinal tract and will cause diarrhea; it is of doubtful value. Peritoneal lavage can remove fluid from the patient if a 3 to 10% dextrose solution is added to the usual composition of the dialyzing fluid. It was not used in this series of patients. The most effective way to remove edema fluid is by ultrafiltration with the artificial kidney. Too rapid loss of large amounts of ultrafiltrate sometimes is followed by mental confusion, but removal of 4 liters per dialysis is possible. The resultant improvement of pulmonary edema is dramatic.

Hyperpotassemia.—Hyperpotassemia is often seen during the oliguric phase. Recognition of hyperpotassemia is best accomplished by determining the serum potassium content with the flame photometer. The electrocardiogram with its very high T waves, broadened QS complexes and low P

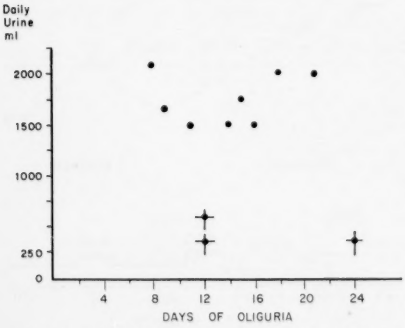

Fig. 3.—Durations of oliguria before beginning of diuresis (urinary output of less than 1,500 ml.): range 8 to 22 days.

waves is only a poor substitute for the direct determination. There are several ways of treating hyperpotassemia: 1. Absorption of K^+ may be achieved with cation exchange resins (Na^+ salt or hydrogen cycle of carboxylic resin or sodium polystyrene sulfonate) in the intestinal tract; 40 to 60 Gm. may be given orally in divided doses or 60 Gm. by repeated high retention enemas.[5] 2. An emergency cocktail may be given intravenously: 10, or 20, or 40% solution of dextrose or invert

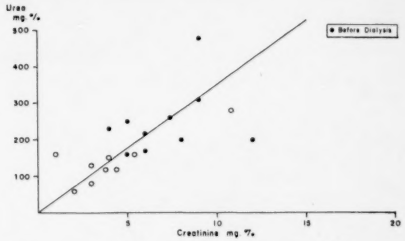

Fig. 4.—Correlation between blood urea and creatinine levels in 11 patients before dialysis (dot indicates values before first dialysis, open circle after dialysis).

sugar (40% solution of invert sugar is given into the vena cava), 1 liter; calcium gluconate, 6 to 10 Gm.; sodium lactate, 180 mEq.; and insulin, 20 or 40 units. Thus, effects of K^+ on the heart muscle may be postponed until an artificial kidney takes over. 3. Rapid digitalization may be performed. 4. Dialysis with the artificial kidney is the most certain and effective way to reduce any degree of hyperpotassemia within an hour.

Hypocalcemia.—Hypocalcemia is frequent in patients with acute renal failure. It seldom causes symptoms. Convulsions only occasionally are due to hypocalcemia. Tetany usually disappears after intravenous administration of 1 Gm. of calcium gluconate; painful leg cramps sometimes disappear.

Acidosis.—During the oliguric phase acidosis practically always occurs. Carbohydrate is administered to reduce starvation ketosis. If the alkali reserve is lower than 12 mEq. per liter, administration of 40 mEq. of sodium lactate or sodium bicarbonate per day may have to be considered. The sodium salt of carboxylic resin given because of hyperpotassemia is effective in relieving acidosis.

Dialysis provides the most effective means of correcting acidosis. The metabolic acids that have accumulated in the blood are removed and normal constituents, Cl^- and HCO_3^-, are replaced.

Suppression of Protein Catabolism.—We administer a regimen low in protein and as high in calories as is practical for suppression of protein catabolism.[6]

Transfusion.—Only when the hemoglobin concentration is lower than 8 Gm. per 100 ml. should the administration of fresh concentrated red cells be considered. It carries the risk of augmenting the blood volume; with the slightest sign of overload-

ing of the circulation or pulmonary congestion, an equal amount of the patient's blood should be withdrawn. Attempts to raise the hemoglobin concentration to normal will only cause increased blood destruction (1 liter of blood contains 70 Gm. of protein).

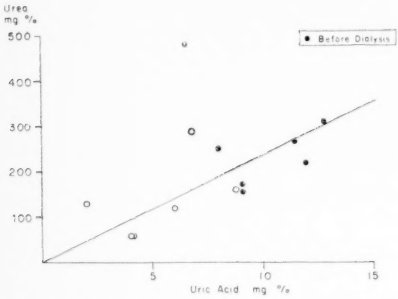

Fig. 5.—Correlation between blood uric acid and urea levels in 11 patients before dialysis.

Prophylaxis and Treatment of Infection with Antibiotics.—Antibiotics often are needed for control of the underlying disease; they should be given prophylactically before pneumonic complications develop in the respiratory tract during a period of stupor or coma. Erythromycin, 2 Gm. on the first day and 1 Gm. daily on the following days, may be administered. Streptomycin, on the other hand, is dangerous because of possible vestibular damage; its administration should not be continued for longer than three days in the presence of anuria.

Artificial Kidneys.—Artificial kidneys were used when the methods described above seemed insufficient to bring about recovery. Disposable twin-coil kidneys were used.[7] Each coil contains two cellulose tubes, 10 meters long. Dialyzing surface for the twin coil is 18,000 sq. cm. The patient is treated with the artificial kidney for a period of six hours. The electrolyte composition of the dialyzing solution resembles that of blood plasma.[8] It takes 1,100 to 1,400 ml. of blood to prime one twin-coil kidney. Dialysis may have to be repeated in three to six days.

Results of Present Study

Between 1954 and 1958, 16 patients having received incompatible blood were seen. The blood was administered for a variety of reasons. Six patients received blood during and after operations, and two received blood because of hemorrhage after delivery. The amount of blood transfused ranged from 1 to 7 pints. A man who received 7 pints of incompatible blood recovered.

The 12 seriously ill patients were treated with dialysis, and 3 of the 12 died. The other four patients recovered without dialysis.

In three patients the transfusion accident happened in large hospitals; two of them did not develop oliguria because the reactions were diagnosed early and the transfusions were discontinued. Thirteen patients were transferred from small hospitals; all were in the oliguric phase.

Three patients had received Rh-incompatible blood: one immediately after delivery and two two and one-half and four years, respectively, after delivery of an erythroblastotic baby. The other patients received simply incompatible blood. For example, a patient with a blood group O received group A. In no case did the trouble result from the use of O donor blood.

Dialysis was performed during the oliguric phase. Only once was it performed in a patient whose urinary output exceeded 500 ml. per 24

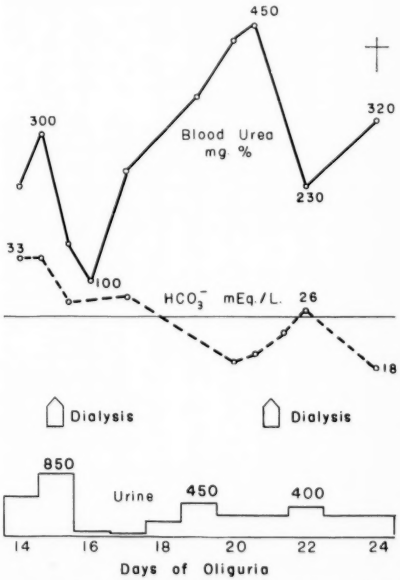

Fig. 6 (case 2).—Predialysis and postdialysis data in critically ill patient with oliguria.

hours. Two patients received dialysis as early as the 4th day, and one patient had his first dialysis as late as the 15th day after the accident (fig. 1). The dialyses corrected the serum Na^+, K^+, and HCO_3^- levels toward normal (fig. 2). In spite of the

rinsing fluid Na^+ level of 132 to 138 mEq. per liter, the serum Na^+ level after dialysis was often 140 mEq. or more. With one exception, the serum sodium and serum potassium levels were corrected toward normal; the exception was not significant. During dialysis, imbalances of HCO_3^- were corrected toward toward normal. The periods before onset of diuresis ranged from 8 to 22 days (fig. 3).

The elevation of the blood urea level usually parelleled that of uric acid and creatinine levels. In only 2 of 10 patients in whom both were determined was there no parallel between blood urea and blood creatinine levels (fig. 4). On one occasion the blood urea content was high (480 mg.%) with a relatively low blood creatinine content (9 mg.%), which reflects the relatively short duration (six days) of oliguria. In one patient with a blood urea content of only 200 mg.%, the blood creatinine content was high (12 mg.%), in spite of a short duration of oliguria (three days). These findings suggested preexisting renal disease, of which there was no evidence. After dialysis, since both urea and creatinine had been removed according to their gradients, a good correlation between the two was found in all determinations.

There was a good correlation between uric acid and urea levels (fig. 5) in all except one patient. Since dialysis removes retention products according to their gradients, the heights of blood urea, creatinine, and uric acid levels were parallel in all patients after treatment with the artificial kidney.

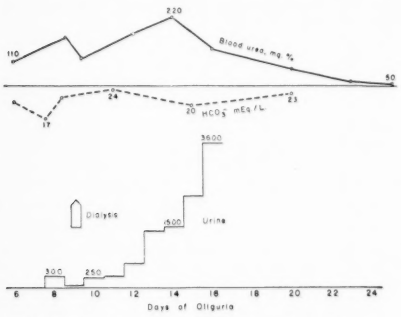

Fig. 7 (case 4).—Data in patient given dialysis.

Report of Cases

Following is a brief review of the cases of 13 patients who developed oliguria after incompatible blood transfusion. At least six patients (cases 1, 4, 5, 8, 9, and 12) would probably not have survived without dialysis. (In the figures accompanying these case reports, the straight line indicates the approximately normal value for blood urea [50 mg.%, high normal], blood creatinine [1 mg.%], serum HCO_3^- [25 mEq. per liter], serum Na^+ [140 mEq. per liter], and serum K^+ [5 mEq. per liter]. Each treatment with the artificial kidney is indicated by a pointed column.)

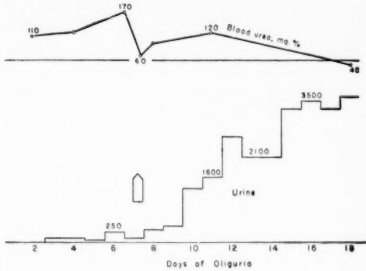

Fig. 8 (case 7).—Data before and after dialysis in patient with low blood urea content and high blood creatinine content.

Case 1.—A 13-year-old boy was given dialysis at the onset of the diuretic phase because his clinical condition was deteriorating. He recovered.[8]

Case 2.—A 58-year-old woman was admitted to Cleveland Clinic on the 14th day of oliguria. She had received incompatible blood in transfusion during cholecystectomy and repair of an inguinal hernia. Oliguria, fever, vomiting, and rectal bleeding developed. When she was admitted to our hospital two weeks later, she was unconscious and had general twitching and tremor. She was given dialysis twice. During the second dialysis, complete heart block developed. The blood pressure dropped despite our attempts to maintain it with blood transfusion, mephentermine, and dextran. Her condition deteriorated (fig. 6), and she died on the 24th day of oliguria. Autopsy revealed tubular necrosis and bronchopneumonia; the latter finding explains the continued deterioration.

The fall in blood pressure during the first dialysis may have contributed to the decrease of urinary output after dialysis which far exceeded the usual decrease after dialysis. A fall in blood pressure cannot always be avoided in patients as critically ill as this one was. Every effort should be made to avoid bronchopneumonia.

Case 3.—A 33-year-old woman had received a blood transfusion during hysterectomy. On the fourth day of oliguria she was given dialysis. She had an uneventful course, with diuresis beginning on the 10th day.

Case 4.—A 30-year-old woman had a perineal abscess and received incompatible blood in transfusion during an anal fistulectomy. On the next day she passed a small amount of bloody urine. She was admitted here on the sixth day of oliguria. On the ninth day she was given dialysis. Diuresis started on the 15th day. She had an uneventful hospital course after dialysis and was discharged in good condition (fig. 7).

This case illustrates the importance of performing dialysis before the patient's clinical condition deteriorates.

CASE 5.—A 40-year-old woman received blood during a major operation and was admitted here on the 10th day of oliguria. She was given dialysis immediately and a second time on the 13th day of oliguria. Diuresis began on the 18th day.[9]

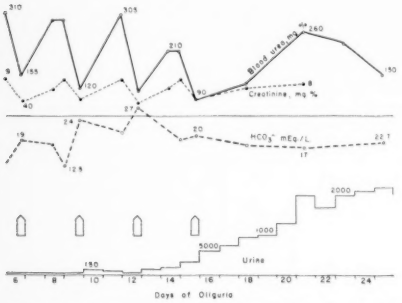

Fig. 9 (case 8).—Results of dialysis in patient who had been given 7 pints of incompatible blood.

CASE 6.—A 22-year-old woman recovered from oliguria without dialysis. The potassium level was controlled with resins. Diuresis began on the 13th day.

CASE 7.—A 28-year-old woman gave birth two weeks before admission to a baby with Rh-positive blood (the baby had an exchange transfusion). After delivery, because of hemorrhage, she had uterine curettage. She was given a transfusion with Rh-incompatible blood and developed oliguria. On the sixth day of oliguria she was given dialysis. She improved during the next days and was discharged in good condition (fig. 8).

This is an example of a patient with a relatively low blood urea content (125 mg.%) and a relatively high blood creatinine content (15 mg.%).

CASE 8.—A 46-year-old man had a nephrectomy. He developed postoperative bleeding, and operation was again performed on the next day, when he received 7 pints of incompatible blood. Severe oliguria and rapid deterioration of his clinical condition developed. He had four treatments with the artificial kidney and recovered (fig. 9). Five months later he was found to be in excellent health.

This was our first experience with a patient who recovered in spite of having been given such a large amount of incompatible blood. We believe that the favorable outcome was due to early dialysis.

CASE 9.—A 26-year-old woman was given 2 pints of incompatible blood for metrorrhagia. Acute renal failure with jaundice, nausea, vomiting, and oliguria developed. On the second day of oliguria she was transferred here. Her condition deteriorated, and dialysis was done on the fourth day of oliguria; improvement followed.

A second dialysis was done on the ninth day of oliguria. During her hospital course, potassium-binding resins were given to keep the serum potassium content within limits (fig. 10). She was discharged after a uterine curettage and has completely recovered.

This case is presented as an example of early dialysis indicated by a serious clinical condition that could not be adequately explained by elevation of levels of the usually determined retention products.

CASE 10.—A 28-year-old woman developed oliguria after receiving Rh-incompatible blood after a hysterectomy. She was given dialysis on the seventh day of anuria. She recovered.

CASE 11.—A 36-year-old woman had given birth to an erythroblastotic baby two and one-half years previously. She received two units of blood after a uterine curettage in a small hospital. Fever, backache, oliguria, and vomiting developed.

On the sixth day of oliguria she was admitted here, acutely ill with a blood urea content of 480 mg. per 100 ml., serum K^+ content of 6.5 mEq. per liter, and serum HCO_3^- content of 12 mEq. per liter (fig. 11). She was given dialysis on admission, and her condition improved. Because of rapid, subsequent deterioration she was given dialysis a second time on the 10th day of oliguria. The next day fever developed. A third dialysis was planned for the 15th day. Tracheotomy was done. During the cut-down procedure for the dialysis she died in cardiac arrest due to potassium intoxication. Autopsy showed tubular necrosis.

CASE 12.—A 61-year-old woman received a transfusion for anemia. Transfusion reaction was noted and the transfusion was stopped, but it was restarted by another person when symptoms subsided. She was given dialysis twice and recovered.

CASE 13.—A 50-year-old woman was admitted to the hospital on the 11th day after hysterectomy and transfusion; she was given dialysis. She died three days later without having improved. Autopsy showed peritonitis and fatty degeneration of the liver.

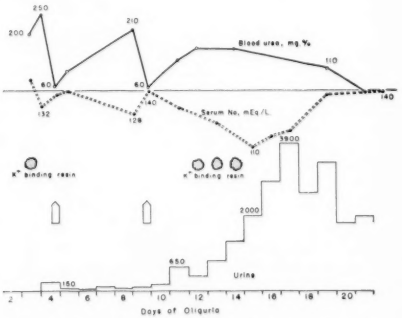

Fig. 10 (case 9).—Results of dialysis in patient with serious clinical condition not explained by elevated levels of retention products.

Comment

Although 13 of our 16 patients were transferred from small hospitals, this means not that transfusion reactions occur less frequently in large hos-

pitals but only that fewer patients were transferred from large hospitals. In the small hospitals the accidents often resulted from mismatching, whereas the three cases in large hospitals resulted from clerical errors. For some patients information concerning the accident was inadequate. Three of the 16 patients died. If two of them had been brought to our hospital earlier, they would have had a chance for recovery or at least for better management. The third patient died from cardiac arrest while preparations for a third dialysis were being made; we failed to anticipate a rapid rise in the serum potassium level. In several of the patients indications for a transfusion were doubtful. The presently prevailing risk of blood transfusion should be more clearly realized.

Indications for treatment of oliguric uremia with the artificial kidney as they developed during the course of this work are as follows: 1. Chemical indications. The blood urea level is higher than 200 mg.%, serum K^+ level approaches 7 mEq. per liter, and serum HCO_3^- level is lower than 12 mEq. per liter. The urea content may be out of line with determinations of levels of other retention products, such as creatinine and uric acid. 2. Clinical indications. The patient is stuporous, comatose, or so drowsy that he does not cooperate and does not cough properly. He may be wild, disoriented, or unmanageable. The need for ultrafiltration is indicated by pulmonary edema, hypertension, and convulsions.

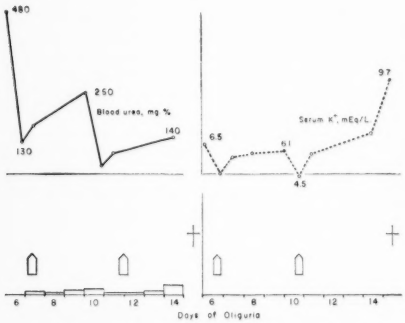

Fig. 11 (case 11).—Cardiac arrest after unanticipated rise in serum potassium level.

An incompatible transfusion is a terrible accident. It becomes a tragedy if the patient is not properly handled. Treatment is best given in a medical center where the staff has experience in the complete management of these cases and where there are facilities for dialysis.

Summary

Between 1954 and 1958, 16 patients in renal failure after transfusions with incompatible blood were treated. Four patients were treated conservatively, and they recovered. Twelve patients were treated with the artificial kidney; nine recovered, and three died. Two of the three patients who died should have been transferred to our center earlier, and one should have received her third dialysis earlier. Disposable twin-coil kidneys were used.

A rise in levels of blood urea and other retention products occurs. In most cases a linear correlation between blood urea, creatinine, and uric acid levels existed, but not always. The medical management of patients with anuria-oliguria includes restriction of fluid intake and prohibition of sodium intake. K^+-binding resins lower the serum potassium level, and their sodium salt also tends to correct acidosis. Protein catabolism is discouraged by a high-calorie, low-protein regimen. Prophylactic antibiotic treatment is indicated. Indications for the artificial kidney are chemical (blood urea level greater than 200 mg.%, serum K^+ level 7 mEq. per liter, and serum HCO_3^- level lower than 12 mEq. per liter) and clinical (stupor, coma, disorientation, and restlessness). Need for ultrafiltration is indicated by pulmonary edema, hypertension, and convulsions.

2020 E. 93rd St. (6) (Dr. Kolff).

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The twin-coil kidneys used in this study were supplied by Travenol Laboratories, Morton Grove, Ill.

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TELEVISION IN OTOLARYNGOLOGY AND OTHER SPECIALTIES—A NEW TEACHING DEVICE

Paul Moore, Ph.D.
and
Hans von Leden, M.D., Chicago

Clinical teaching is difficult when conditions do not permit more than one person at a time to see the part of the body that is being examined or treated. The equipment here described is designed to overcome this difficulty. It is mounted on the instructor's head in such a way as to permit him to observe the interior of an organ directly while a properly aligned and focused television camera picks up an image that can be transmitted to an audience of any desired size. The critical elements of the apparatus are a small, lightweight television camera and a periscopic system with front-surfaced mirror, peep-sight, lens, and prism. The helmet bearing the apparatus is heavy and must be counterpoised. External sources of intense illumination are available. This form of closed-circuit television is useful in clinics, classrooms, operating rooms, and situations arising in postgraduate instruction.

Clinical teaching in otorhinolaryngology has been handicapped by the inability of the examiner to expose the cavities of the ears, nose, and throat for simultaneous inspection by others. The narrow channels of the head that transmit sound outward from the organ of voice and inward to the organs of hearing can be visualized readily only by one person at a time. Similar difficulties beset the gynecologist and proctologist as well as the endoscopist in the fields of urology, otolaryngology, chest surgery, and gastroenterology.

This limitation of observation presents a serious handicap to clinical, classroom, and surgical instruction. Two procedures are currently in general use to alleviate this problem; both have been helpful in selected instances, but neither satisfies the primary need. One of these techniques requires the placement of a small mirror near the viewing axis of the examiner in such a position that the critical image is reflected to a second observer. The second procedure referred to is photography, including both still and motion pictures. The mirror method displays the clinical material immediately, but the observation is sometimes difficult to accomplish and is limited to one additional viewer at a time. Photography, on the other hand, displays the material to many observers but the immediacy of the clinical presentation is lacking.

It is obvious that a procedure which allows an examiner or surgeon to show a specific area deep in a body cavity to any desired number of observers at the moment of examination or treatment provides a greatly improved method of teaching. The accomplishment of this objective depends on the satisfaction of three basic requirements: the examiner must be able to see the field clearly, the equipment must conform to the examiner's movements, and all other observers must be able to visualize the same area as the examiner. It is evident that the third requirement could be met with closed-circuit television, provided the image is received simultaneously by a television camera. This procedure has been demonstrated in general medicine and surgery where standard lighting and camera techniques are applicable. However, when the critical field of observation lies within a restricted channel, the direct view of the television camera is obscured during the process of examination. The fundamental requirement, therefore, for simultaneous viewing and televiewing of the cavities of the head and neck is a positioning of the equipment which allows the camera to receive an image in the optical axis of the examiner. At the same time this arrangement must preserve a direct view of the field and retain freedom of movement for any manipulation. We have developed a practical pilot model of a television-scope that meets these three requirements.

It is evident from the schematic illustration of the equipment (fig. 1) that the mechanism rests on the examiner's head and that the camera gathers its picture by means of a periscopic lens. The light reflected from the subject (fig. 1*A*) travels directly to the eye of the examiner and, at the same time, to the television camera by way of a mirror and lens arrangement (fig. 1*B*, *D*, and *E*). The periscopic system and the camera support provide the necessary mobility for both the examiner and the camera and permit coaxial viewing and televiewing. The details of the components in this combined unit are presented under the three functional divisions which compose it: the optical and television system, the supporting mechanism, and the illumination.

From the Laryngeal Research Laboratory, William and Harriet Gould Foundation, and Northwestern University Medical School.

Optical and Television System

The small, lightweight television camera and the periscopic lens are the critical elements of the present equipment. The optical system is composed of five important elements that will be described in their functional sequence: front-surfaced mirror, peep-sight, lens, prism, and vidicon tube.

Front-Surfaced Mirror.—The front-surfaced mirror (fig. 1*B*) is so constructed and located that it reflects the image upward to the camera lens yet allows the same image to pass through to the eye of the examiner. The cut-away section of the illustration shows the mirror resting in the observer's line of sight at an angle of 45 degrees to the viewing axis. The separation of the image beam may be accomplished by two different types of mirror. In one form the surface is sparsely coated with a reflecting material; in the other the glass is densely covered except for a small clear area in the center. With the partial mirror, the surface is uniform but a reduced amount of light is reflected to the lens, since some light "leaks" through over the entire area. The other, or center-hole, mirror reflects all of the light except at the small central area where the light passes through the clear glass. Both kinds of mirror have been used in this development, but the center aperture type was adopted because it reflects the image with less loss of light and presents a brighter field to the observer. The center opening is not evident in the television image because it is out of the focal range, and the intensity is not noticeably affected as long as relatively large lens apertures are used.

Peep-Sight.—The peep-sight is composed of a pair of holes 3/32 in. in diameter placed 1½ in. apart. These openings are located at the inner and outer ends of the rearward extension of the mirror housing (fig. 1*C*). The size of the holes and their placement enable the examiner to see fields of 1½-in. diameter when the subject-to-mirror distance is 12 in., of approxmately 2 in. at a distance of

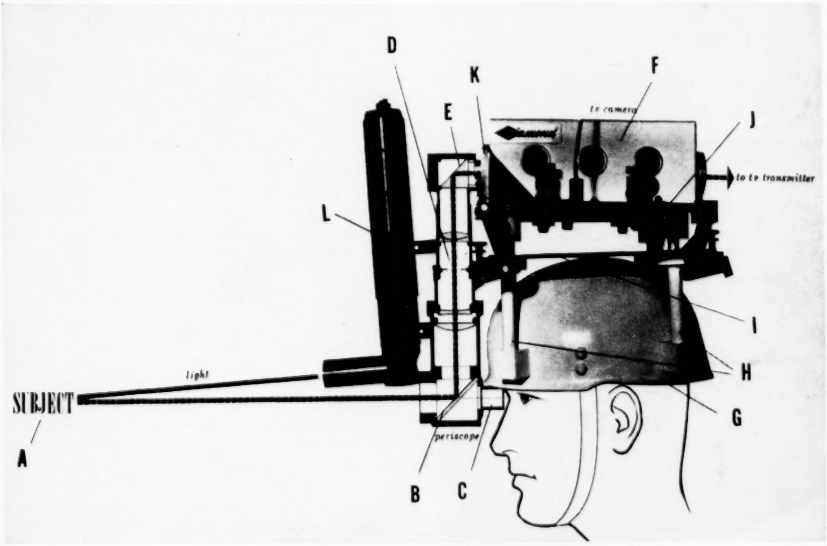


Fig. 1.—Photodiagram of television-scope.

15 in., and of 2½ in. at 18 in. These sighted areas coincide with the field covered by the television camera lens and aid the examiner in aiming the camera precisely at the field of interest. This restriction of the field through the peep-sight does not pose any problem for the examiner since his other eye retains full view of the entire field of vision.

Lens.—The lens (fig. 1*D*) used in the present instrument is a modified 6-in. f/4.5 Tessar lens with the elements permanently focused at a subject distance of 20 in. The barrel containing the lens elements is continuous with the mirror housing below and the prism holder above. This unit con-

struction maintains a constant eye-level to camera-level distance and adds a desirable rigidity to the assembly. The fixation of the lens elements eliminates the customary type of optical focusing and permits substitution of adjustment at the focal plane, which is described later in the discussion of the vidicon tube.

Prism.—After the image beam traverses the lens elements it is turned 90 degrees toward the television camera by a 1-in. prism that is mounted at the top of the lens section (fig. 1*E*). The housing which supports the prism opens toward the camera and is attached to the supporting structure of the helmet by means of a threaded collar and thumbscrews.

Vidicon Tube.—The final stage in the optical system is the television camera (fig. 1*F*); here the light is focused on the vidicon tube where the visible image is converted to electrical impulses that travel by way of a multiconductor electrical cable to the control equipment and subsequently to one or more television screens.

Fig. 2.—Nasal examination demonstrating illumination by means of modified head mirror and detached light source.

There are two systems for obtaining an optical focus of an image on a vidicon tube that may be used with the present equipment: in one type the lens is adjusted while the tube remains stationary; in the other, the lens is fixed and the tube is moved toward or away from the lens. The second method was selected as the more desirable for this pilot model because it is simpler and lends itself to either manual adjustment or remote electrical control.

Supporting Mechanism

The successful application of this periscopic television system to teaching in otorhinolaryngology and other surgical specialties depends to a large extent on the ease and simplicity with which the mechanism can be manipulated. The equipment that supports the operating part must be comfortable, mobile, noninterfering, and adaptable to different persons and situations. The mechanism that supports the television camera and its associated components is composed of two primary parts: the equipment worn on the examiner's head and the counterweighting system that carries the helmet and attached units.

Head Unit.—The basic structure of the unit worn on the head is a Fiberglas helmet (fig. 1*G*) to which four metal tubes 4¼ in. long are attached at equally spaced intervals as indicated by the illustration (fig. 1*H*). At the top of the tubes an aluminum plate (fig. 1*I*), 8⅝ by 10⅛ in., is fastened securely to give rigidity and stability to the foundation structure. The four tubes are fitted with free-sliding rods that are attached at their upper ends to a second aluminum plate (fig. 1*J*) that forms a platform for the television camera. The rods are fastened by pin-and-eye hinge joints that permit the upper platform to be tilted and lifted in relation to the lower plate. These adjustments between the platform and plate compensate for variations in vertical head dimensions among different examiners. The peep-sight must be raised or lowered to accommodate the eye level of the examiner, an adjustment which is accomplished by a corresponding positioning of the camera platform. A simple system of levers connects the two plates at their corners and applies the force that varies the interplate angle and distance; thumb screws lock the levers in their desired positions.

On the upper surface of the platform two auxiliary aluminum plates are mounted for the support and adjustment of the camera. The smaller of the plates, 8⅝ by 3⅛ in., is attached to the underside of the camera and slides toward and away from the lens; this movement accomplishes the focusing mentioned above. The second of the auxiliary plates, 8⅝ by 6⅛ in., holds the sliding camera plate, supports the lens system on the vertical plate (fig. 1*K*), and positions the entire optical-camera system laterally. This side-to-side adjustment combined with the front-to-back and vertical motions described earlier provides a universally adjustable camera support on the examiner's head.

Counterweighting System.—The weight of the equipment attached to the helmet is approximately 18 lb., too much to be carried comfortably without some external assistance. A simple and flexible supporting mechanism was devised consisting of a counterweighted bar resting horizontally on an adjustable vertical shaft. The bar is joined to the upright shaft by means of a ball-bearing bracket that permits the bar to swing around the shaft and provides a fulcrum for vertical movement. A T-shaped unit that suspends the helmet is adjustable along the bar and thereby provides the means of establishing equilibrium. A balanced suspension is the most comfortable and flexible adjustment for the use of this equipment.

Illumination

Two methods of illumination have been used interchangeably with the present pilot model: in one, light from an external source is reflected onto the subject by a modified concave head mirror (fig. 2); in the other method, a beam from a small, high candle power lamp attached to the periscope lens (fig. 1*L*) is directed to the critical area. The reflected light system was developed to simulate the method of illumination used traditionally in the field of otorhinolaryngology. This system offers almost limitless intensity of illumination, since the independent light source can be as powerful as desired. It also provides shadow-free lighting as the result of the beam converging from all points around the lens axis. The principal disadvantage of the reflected light technique is the need for adjustment of the mirror each time either the examiner or the subject moves. When both hands are occupied in an examination or operation, the coincident positioning of the camera and illumination is difficult to manage.

Fig. 3.—Study of tympanic membrane of patient, by means of television monitor, while physician conducts his examination.

This problem of mirror adjustment led to the development of the alternate method of lighting in which a lamp and appropriate lenses are mounted on the optical lens assembly. In this system the camera field and the lighted area are made congruent and secured in this relationship. Consequently, the lens field is always illuminated, which relieves both of the examiner's hands for patient management. The two limitations of the integral lamp in the pilot model are light intensity and parallax factors associated with the positioning of the lamp. Both of these limitations are relatively simple technical problems which are being solved in current development of the equipment.

Applications

We believe there are four teaching situations in which the new type of television equipment, described above, will be particularly useful. The first three, clinic, classroom, and operating room, are illustrated in figures 3, 4, and 5.

Figure 3 shows a group of medical students in an otology clinic studying the tympanic membrane of a patient by means of the television monitor while the otologist conducts his examination. Figure 4 pictures a class of nurses receiving instruction on the functioning of the larynx; and figure 5 demonstrates the equipment in the operating room during operations on the nose and ear. The fourth type of instructional application is an extension of the other three into postgraduate teaching. Closed-circuit television provides the method for disseminating new techniques and information to the physician in his home, office, or hospital. This form of instruction has been used in several branches of medicine, but, with new equipment, this teaching procedure can be extended to otolaryngology and other surgical specialties dealing with deeply placed structures.

Further Developments

The experimental application of the pilot model to various teaching situations has demonstrated that a television camera and associated periscopic lens system supported on the head of an examiner provides a practical means of improving clinical instruction. The developmental program has also revealed several desirable changes in the equipment that should be incorporated in its further refinement. These may be summarized briefly, for the convenience of those contemplating similar developments, into four specific and somewhat interrelated modifications: increase in the depth

Fig. 4.—Class viewing action of larynx by means of television screens during examination.

of the televised field, variation of field size, modification of the helmet support attachment, and introduction of color television.

Increase of Depth of Field and Variation of Field Size.—In the pilot model the single, fixed, telephoto lens provides maximum magnification of the image at the cost of a shallow field and a relatively small subject area. For teaching purposes it would be ideal if all structures present in the television image could be presented in sharp focus and if the area surveyed by the lens could be made larger and smaller to fit the organ or cavity being examined. Available equipment makes it possible to approach these goals through the selective balancing of such factors as various focal length lenses, size of lens aperture, illumination, and improved television equipment. The pilot model has been redesigned to accept these modifications through provisions for interchangeability of lenses, increased illumination, and a more sensitive television camera tube.

Modification of Helmet Support Attachment.—The suspension of the helmet and associated equipment shown in figure 1 is designed primarily for horizontal viewing. The present range of motion is entirely satisfactory for the usual clinical and classroom demonstrations, but during surgical procedures increased vertical variation is desirable. This maneuverability may be accomplished by attaching the suspension brackets on either side of the helmet at the level of the lower plate, which is close to the axis of vertical rotation and permits easy downward motion of the camera.

Color Television.—The greatest improvement which could be made would be conversion from black and white to color television. The use of color helps to delineate the natural features of the areas being visualized and suggests the three-dimensional character of the field. These features are particularly important in the areas under discussion, where all structures display variations of one and the same color. We hope a small color camera will be developed soon which can be adapted to this televiewing system.

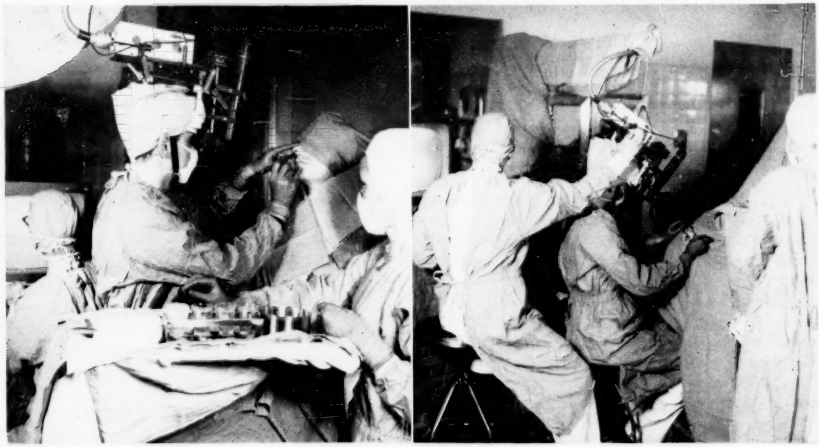


Fig. 5.—A, surgeon and television camera simultaneously follow operation in nose. *B*, operation within ear canal is televised for assistants and observers.

Summary

In the past, clinical teaching in otorhinolaryngology and other surgical specialties has been limited by the difficulty of displaying critical areas within the ear, nose, throat, and other body cavities for student observation. The basic problem has been solved with a small television camera and an associated special periscopic lens system. The device permits direct viewing by an examiner and simultaneous televiewing by others of exactly the same subject area. A complete working pilot model was built and used in several teaching situations in otorhinolaryngology. This application of the instrument demonstrated its practicability and revealed a few desirable modifications that are being instituted in continuing development. With appropriate changes in the optical system, the same principle could be applied to television of similar procedures in various branches of medicine and surgery.

159 E. Chicago Ave. (11) (Dr. von Leden).

The television equipment used in this study, Diamond Utilivue Model 500 closed circuit television system, was supplied by Diamond Power Specialty Co., Lancaster, Ohio.

HEART EXAMINATION AND CONSULTATION BY RADIO AND RADIO-PHOTO TRANSMISSION

Arthur Briskier, M.D., New York

The transatlantic sending of heart sounds, roentgenograms, and other essential clinical data is possible. The accuracy of such transmission from New York has been tested by recording the data on tape in Paris and Rome and instantly retransmitting to New York. There was no language barrier when the transmitted records contained no spoken words. The transmitted information, both visible and audible, was received in the form of recordings that could be examined with deliberation and stored for reference. The experiments here reported were concerned with heart conditions, but the possibilities so revealed were far-reaching.

In this age of space travel, when each moment counts, it is important that medical consultations with an appropriate specialist be available at any time and place, particularly in cases of emergency. The best clinical examination, of course, results from personal contact with the patient, and it is the doctor who should make the diagnosis, not the machine. It is not the purpose of the described method to substitute heart auscultation by radio-electronic devices for such examinations, but in emergencies, or when the patient is at a great distance from the specialist, the application of the modern means of communication will undoubtedly prove beneficial.

The radio transmits information of all kinds instantly from one corner of the earth to the other and telephotography similarly transmits photographs. These modern technical facilities are available to medicine. The heart, being the motor of any living body, deserves particular consideration; indeed, my first essays in distance transmissions were records of heart examinations. The first two experiments with transatlantic transmissions of heart auscultation were performed on May 26 and July 3, 1958, from New York to Paris and Rome.

Transmissions

First, the details of auscultation of a normal heart were transmitted through sound tape.[1] In Paris and Rome a recording was made of the transmitted heartbeats. In order to check cardiac acoustic phenomena received abroad, the recorded sounds were instantly retransmitted from Paris and Rome back to New York. It was thus possible to judge the quality of the transmission and the reception through retransmission of the audiovisual records.[2] Within a few seconds the heart sounds crossed the ocean twice, first to Europe and then back to America.

With the heart sounds a visual record was transmitted by radiophotography, containing the clinical data on the patient such as age, sex, height, weight, temperature, and blood pressure as well as a chest roentgenogram, an electrocardiogram, and the symbolic cardio-charting.[3] The transmitted records also contained the results of laboratory tests.

After the successful reception of the audiovisual data on a normal heart, records of certain pathological cases were transmitted, including instances of mitral stenosis, mitral insufficiency, aortic stenosis, and aortic insufficiency. Preoperative and postoperative data on cases of cardiac surgery were then transmitted, including tight mitral stenosis, mitral stenosis with subacute bacterial endocarditis, patent ductus arteriosus with subacute bacterial endocartitis, and tetralogy of Fallot. It would not have been possible to compare at a distance the auscultatory findings preceding and following surgical intervention without the recorded preoperative auscultatory details.

After the surgical records, fetal heartbeats which had been recorded just before delivery were also transmitted along with the normal heartbeats of the mother for purposes of comparison. Audiovisual transmission of cardiac records which are often sufficient can be supplemented if necessary in special cases by direct transoceanic conversations between two medical consultants.

Technique

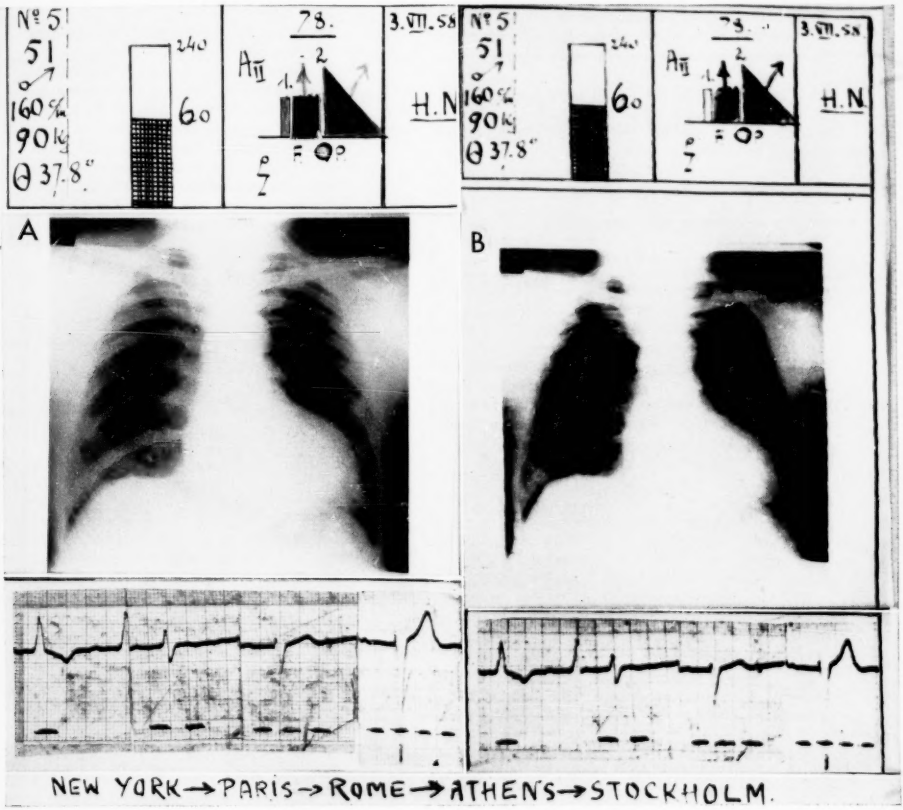
Cardiac auscultation is first recorded on sound tape[4] through an appropriate microphone and then played back for audible transmission. The recording speed is irrelevant since cardiac frequencies are rather low. While the speed of transmission may or may not correspond to the recording speed, the playback must be at the recording speed. The auscultation can also be directly transmitted, if the cardiac sounds and murmurs are fed directly from the patient's chest through the microphone and the magnetic head to the transmitting instrument.

The visual record, which contains the clinical data, the chest roentgenogram, the electrocardiogram, and the cardio-chart,[5] is located on one side of a sheet of paper which is placed on the drum of the telephoto transmitter. The photograph received in Europe is similar to the original transmitted from New York, and can be used at once for medical interpretation (see figure).

Results.—Abroad, the reactions of the heart specialists to the transmitted records were similar to the reactions these same examiners would have had

during an actual examination of the same patients. While the audiovisual record is studied at the point of reception, a copy is transmitted so that patients can be instantly studied, discussed, and compared in the remotest parts of the world by the appropriate specialists while the patients themselves remain undisturbed.

sion of laboratory tests, and communication of therapeutic results; and instant reporting of medical data concerning epidemics and disasters. Although the experiments reported here were concerned exclusively with heart conditions, this method of consultation by radio transmission will prove useful in all fields of medicine, surgery, and obstetrics.



A, visual record transmitted from New York; B, same record a few minutes later at reception in Paris, indicating age, sex, height, weight, temperature, pulse, cardio-chart, chest x-ray, and electrocardiogram. Cardio-chart (top) shows (1) first heart sound; (2) second heart sound masked, following (1) loud rough systolic murmur radiating upward, following (2) soft decrescendo murmur radiating outward and upward best heard at A_{II} aortic region, second interspace.

Applications.—This method has such far-reaching applications as cardiac consultation with specialists located anywhere in the world, particularly when the desired specialist is on a different continent than the patient; in cases of emergency, lifesaving consultations from a plane, a boat, the desert, or the jungle; teaching, demonstration of unusual medicosurgical cases, communication of scientific discoveries; establishment of diagnosis, transmis-

Universality.—The transmitted records contained no spoken words, so there were no language barriers. Because of the simplicity and the clarity of the records, including the self-explanatory symbolic cardio-charting, the messages are instantly understood by all physicians of any nationality.[6] The method is therefore universal in scope and spirit.

Thanks to radio and radiophotographic transmissions of clinical and laboratory data, a new field is open for instantaneous medicosurgical examination and consultation. Thus an interchange of medical and scientific information from and to any distant place is possible. The application of this new method will prove useful therapeutically for both patients and doctors and it should result in a more complete and satisfactory mutual understanding among all doctors and scientists throughout the world.

Summary

Short wave radio and telephoto transmission make it possible to communicate instantly, at any distance, all pertinent clinical and laboratory findings in patients with heart conditions. The first successful transatlantic audiovisual transmissions of cardiac auscultation, including clinical data, roentgenogram, electrocardiogram, and cardiochart from New York to Paris and Rome and back have been accomplished. The audible heart sounds were transmitted by radio through sound tape. The complete visual records were transmitted by radiophotography.

The transmission was successfully received in Paris and Rome, and the sound fidelity as well as the picture quality were crosschecked in New York by immediate retransmission of the records after their reception abroad. This new system can be used in all fields of medicine, surgery, and obstetrics in all parts of the world.

950 Park Ave. (28).

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STAPHYLOCOCCUS AUREUS IN AIR OF AN OPERATING ROOM

Harold W. Wolf, M.S., Marvin M. Harris, Ph.D.
and
Wesley R. Dyer, M.D., Savannah, Ga.

Air-sampling for bacteriological studies was carried out in an operating room for nine days, during which 27 patients were operated on. The 34 colonies of Staphylococcus aureus so obtained were studied as to bacteriophage type. The most frequent type was 80/81. The colonies differed as to sensitiveness to most of the eight antibiotics tested, but all colonies were sensitive to polymyxin B. Eight of the colonies proved sensitive to every one of the antibiotics tested, but there was one colony, not typable, that was resistant to chlortetracycline, chloramphenicol, erythromycin, penicillin, oxytetracycline, and tetracycline. Nontypable colonies were obtained from the nares of two persons working in the operating room. One postoperative infection occurred; the organism concerned was a staphylococcus of type 80/81.

In March, 1958, the U. S. Public Health Service Hospital in Savannah, Ga., created an interdepartmental committee on infections as recommended by the Conference on Staphylococcic Infections in the Hospital and Community.[1] This committee initiated a program to determine the extent of the potential staphylococcic problem within this hospital and requested the assistance of the Technical Development Laboratories of the Communicable Disease Center, also located in Savannah, with the phase of the program concerned with airborne organisms. This paper presents a discussion of some of the findings in air-sampling work conducted to date.

Staphylococcus aureus has been isolated from the air of surgical wards,[2] nurseries,[3] and burn dressing rooms,[4] as well as operating rooms.[5] In spite of this rather common prevalence, the role of air in the transmission of hospital-acquired infections is still

From the Communicable Disease Center, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Technical Development Laboratories (Mr. Wolf and Dr. Harris) and the Public Health Service Hospital, Bureau of Medical Services, Public Health Service, U. S. Department of Health, Education, and Welfare (Dr. Dyer).

not clearly defined. Clarke and co-workers,[2] after studying Staph. aureus wound infections in two surgical wards, concluded that spread by contact was the most important route and that efforts to limit spread by contact would be more fruitful than measures directed at airborne bacteria. Nevertheless, Shooter and co-workers [6] reversed the direction of air flow through an operating room so that air entered the theater from out-of-doors instead of from a hospital corridor and thereby reduced the total bacterial counts of the room as well as the number of postoperative infections. One of the latest studies to be reported has been that of Kinmonth and others,[7] in which a curved tube was attached to the inlet of a slit sampler and the open end of the tube was exposed adjacent to the incision of individuals on the operating table. Staph. aureus was recovered on only six occasions, and two Staph. aureus infections occurred when no Staph. aureus was detected in the air. It was concluded that there seems to be little relationship between the development of postoperative sepsis and the presence or absence of Staph. aureus in the theater air. However, the technique of adding a curved tube to the inlet of a sampler, and drawing air through this tube in order to obtain a sample, is a questionable one, since the heavier particles will most likely be trapped in the tube and will not reach the sampler.

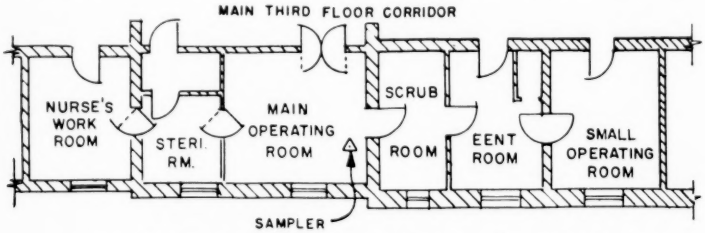

Fig. 1.—Operating suite, PHS Hospital, Savannah, Ga. (scale: 1/16 in. equals 1 ft.).

Methods of Study

The PHS Hospital in Savannah has a capacity of 150 beds. It was constructed in 1906. The operating theater is on the third floor and comprises a suite of rooms, as shown in figure 1. The rooms are all interconnected and are located adjacent to the main third-floor corridor. Air from outdoors passes through a system of filters and a refrigerated water spray (or through steam-heated coils in cold weather), enters the main operating room under positive pressure through four ceiling diffusers, and leaves through the doorways. An outlet specifically for air is not provided in the main operating room. The air is not recirculated. Temperatures during the sampling days ranged from a low of 64 F to a high of 76 F, and relative humidities ranged from 37 to 78%. The rooms are also warmed by means of steam radiators.

A Casella slit air sampler was used in this survey and was set up in the main operating room near the scrub room door. Settling plates were simultaneously exposed near the slit sampler. The approximate location is shown in figure 1. The site selected for the sampler was based on the desire to obtain as good a sample of air as possible without interfering with the surgical team. It was set up 6 to 8 ft. from the operating table at approximately the same elevation as the table and near an open door through which outgoing air passed.

Two types of mediums were used in the sampling activities, 5% defibrinated sheep blood heart infusion agar and Chapman-Stone (Difco) agar. One or the other medium was used in the slit sampler for an entire day. With the settling plates, both mediums were exposed simultaneously except for one day when blood agar plates only were exposed.

The slit sampler was operated at a rate of 0.97 cu. ft. per minute. Plates were exposed in this sampler for different intervals of time, varying from 5 to 15 minutes for blood agar plates and 10 to 20 minutes for Chapman-Stone agar plates.

Blood agar plates were incubated at 37 C for 48 hours. Chapman-Stone plates were incubated at 37 C for 24 hours followed by 30 C for 48 hours. All suspicious-looking Staph. aureus colonies on blood agar were streaked on Chapman-Stone agar. Golden-colored colonies on Chapman-Stone agar were transferred to heart infusion agar slants. Gram stains of these transplants were made and coagulase tests performed. In no case was a golden-colored colony on Chapman-Stone agar found which was not coagulase positive. Total colony counts were made on the blood agar plates after 48 hours' incubation at 37 C. A golden-colored colony on Chapman-Stone agar showing gram-positive cocci in typical cluster arrangement and coagulase-positive characteristics was considered as Staph. aureus. The tube coagulase test was employed using desic-

cated rabbit plasma (Difco). A careful record of the activities in the operating room was maintained while sampling was being done.

Findings

Air-sampling activities were conducted in the main operating room on nine days between March 31 and June 6, 1958. A total of 27 patients were operated on during the sampling days; 3,276.3 cu. ft. of air was sampled in the slit sampler, 1,685.0 on blood agar, and 1,591.3 on Chapman-Stone medium. Blood agar settling plates were exposed a total of 3,748 minutes and Chapman-Stone plates 3,189 minutes.

At least one colony of Staph. aureus (as identified above) was recovered on each of the nine sampling days. The frequency of distribution was as follows: one colony was recovered on each of three days, 2 colonies on each of two days, 3 colonies on one day, 6 colonies on each of two days, and 12 colonies on one day.

Recoveries of Staph. aureus with the slit sampler for the two mediums totaled 18 colonies on blood agar and 12 colonies on Chapman-Stone agar. Correcting for the difference in volume sampled, this represents a yield of Staph. aureus–bearing particles per 100 cu. ft. of 1.07 for blood agar and 0.76 for Chapman-Stone agar, or a ratio of 1.41 to 1. Laboratory tests of the same two mediums, with use of phage types VA4 isolated from an infection and 80/81 isolated from the air, were made in which the two mediums were inoculated with equal volumes of dilute suspensions. The ratios of recoveries on blood agar versus Chapman-Stone agar obtained from these tests were 1.30 to 1 for the VA4 strain and 1.67 to 1 for the 80/81 strain. These ratios show that the recoveries of Staph. aureus from the operating room air with these two mediums are of the same order as would be expected based on laboratory findings.

Only four colonies of Staph. aureus were recovered on Chapman-Stone settling plates. None was recovered on blood agar settling plates. This was probably a chance phenomenon with no relationship to particle size or the kind of medium employed.

All 34 Staph. aureus colonies isolated from the air of the operating room were phage typed. Fourteen were 80/81, nine VA4, and three not typable, while the remaining cultures consisted of one each of the following types: 6,77; 44A; 47; 7; 52A,80; 29,52,52A,80; 52A; and 79. Sensitivities of the Staph. aureus isolated from the air of the operating room were checked against eight antibiotics with use of intermediate-strength Difco disks. The presence of a zone of inhibition without regard to size was interpreted as indicating sensitivity. The order of decreasing effect was as follows: (*a*) polymyxin B, 100% sensitive; (*b*) erythromycin and penicillin, 97% each; (*c*) chloramphenicol (Chloromycetin), 88%; (*d*) chlortetracycline (Aureomycin) and tetracycline, 62% each; (*e*) streptomycin, 29%; and (*f*) oxytetracycline (Terramycin) 27%. The table summarizes the phage types and sensitivities of these colonies.

Phage Types and Antibiotic Sensitivities of Staphylococcus Aureus Sampled from Air of Operating Room

No. of Colonies	Phage Type*	Antibiotic Sensitivities†							
		Chlortetracycline	Chloramphenicol	Streptomycin	Erythromycin	Penicillin	Polymyxin B	Oxytetracycline	Tetracycline
2	VA4	S	S	R	S	S	S	R	S
9	80/81								
2	80/81								
5	VA4	R	S	R	S	S	S	R	R
1	47								
2	80/81	R	R	R	S	S	S	R	R
1	80/81	S	S	R	S	S	S	S	S
1	VA4	R	S	R	S	S	S	R	S
1	VA4	S	R	R	S	S	S	R	R
1	52A, 80	R	S	S	S	S	S	R	R
1	Not typable	R	R	S	R	R	S	R	R
1	6,77								
1	44A								
1	79								
1	52A	S	S	S	S	S	S	S	S
1	7								
1	29, 52, 52A, 80								
2	Not typable								

* Phage typing by Communicable Disease Center laboratory branch facilities, Chamblee, Ga.
† Intermediate-strength Difco disks. S = sensitive; R = resistant.

Two of the operating room staff harbored Staph. aureus in their nares, as determined by single cultures taken by the infections committee. The Staph. aureus in both of these individuals were of a strain that was not phage typable and were resistant to penicillin. During the course of the air-sampling studies, only one colony of Staph. aureus which fits this pattern was isolated from the air. This was obtained 10 days after the cultures were taken from the staff and was the only Staph. aureus recovered on that day. Both individuals were in the operating room at the time this organism was sampled.

The mere recovery of one or two Staph. aureus colonies from the air in a day's sampling time does not provide much of a picture unless the sampling procedure is continued long enough to permit the emergence of some sort of pattern. However, when 6, or better yet, 12, isolates are obtained in a day's sampling, some patterns become apparent.

Data from the three days on which these numbers were recovered from the air of the operating room during the course of this survey are shown in figures 2, 3, and 4. Figure 2 represents the results of May 21, when Chapman-Stone agar was used in the slit sampler. The arrows above the time

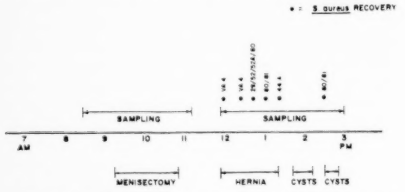

Fig. 2.—Staphylococcus aureus recoveries in main operating room, May 21, 1958.

scale indicate the length of time the slit sampler was operating. Each black dot denotes a Staph. aureus recovery and is positioned chronologically. The number above each dot denotes the phage type. The arrows underneath the time scale denote the time interval from the initial incision to the final suture. On this day, all Staph. aureus recoveries were obtained after the lunch hour. In spite of the apparently heavy exposure (5.4 Staph. aureus per 100 cu. ft. of air sampled) of the hernia patient, neither he nor any other patient this day developed a postoperative infection.

Figure 3 represents the results of April 21, when blood agar was used in the slit sampler and total counts obtained. Again, the arrows indicate actual intervals of operations, the dots represent Staph. aureus recoveries, and the numbers above denote the phage types. All cultures were phage type VA4. A point of interest on this day was the three colonies that were obtained on the sample which was exposed while the room was swept with a hair broom. The only time a broom was used in the operating room of this hospital was at the end of the day when the amount of debris (mostly sutures) on the floor was too great to be picked up individually by hand. (A mop dampened by a disinfectant solution has now been substituted.)

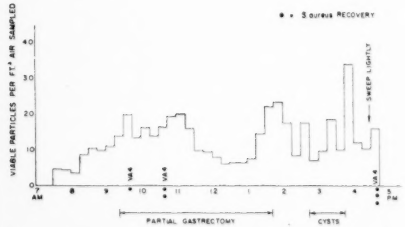

Fig. 3.—Bacterial counts and Staphylococcus aureus recoveries in main operating room, April 21, 1958.

Figure 4 represents the day when the highest recoveries were made (23 Staph. aureus per 100 cu. ft.) and the day a patient became infected. This patient had a biopsy performed on his right femur. All four Staph. aureus colonies isolated from the air by the slit sampler while this patient was undergoing surgery as well as the two recovered from the settling plate were phage type 80/81. The subsequent postoperative infection suffered by this patient was due to an 80/81 Staph. aureus.

At the end of this day, the room was swept with a hair broom. Two Staph. aureus colonies were sampled from the air at this time. One was a phage type 7 and the other an 80/81. The sample that followed this was accidentally broken and consequently it is not known how rapidly the Staph. aureus-bearing particles which were apparently stirred up by the sweeping might have settled out.

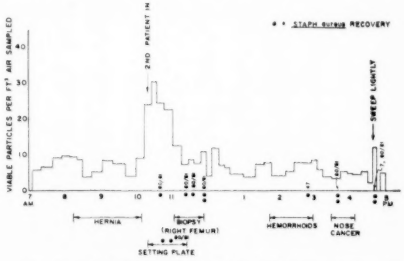

Fig. 4.—Bacterial counts and Staphylococcus aureus recoveries in main operating room, June 6, 1958.

However, none was recovered from the following and last sample of the day, which was taken approximately 10 minutes after sweeping ceased. Duguid and Wallace [8] demonstrated that 90% of the bacteria-carrying particles disappear for various reasons within 35 minutes after an unventilated room is vacated.

Comment

According to the results with the slit sampler, two individuals were exposed to relatively high concentrations of airborne Staph. aureus. The patient of May 21 did not suffer a subsequent postoperative infection, while the patient of June 6 did. If airborne Staph. aureus was the source of the infection and all the many other variables are equated, what differences can be found in the two cases? First, the May 21 patient was exposed to a peak concentration of 5.4 Staph. aureus-bearing particles per 100 cu. ft., whereas the June 6 patient was exposed to a maximum of 23 per 100 cu. ft. Second, no Staph. aureus colonies were recovered from settling plates on May 21, whereas two were

recovered prior to or during the operation of June 6 (a settling rate of 26.5 Staph. aureus–bearing particles per square foot per minute). And third, three different phage types were recovered during the critical interval of May 21, whereas all those recovered during a similar interval of June 6 were of the one type, 80/81.

The data of May 21 and June 6 both indicate a sudden influx of the Staph. aureus into the air of the operating room. (As demonstrated by Shooter and others," Staph. aureus, when present in comparatively large numbers, appears to enter in an explosive manner.) April 21 would have been a "low-yield" day had it not been for the three colonies recovered while the room was swept. The data of May 21 suggest that the operating room personnel and/or the patient brought the organisms in with them after lunch, since no Staph. aureus–bearing particles were obtained prior to lunch and the same personnel were present during the entire day. The data of June 6 show that the patient probably brought the Staph. aureus into the room, since none was recovered prior to his entering and the operating room personnel consisted of the same individuals. This does not eliminate the operating room personnel, since several did leave the operating room for short periods between operations and return.

Conclusions

While we agree that the data of this study are extremely limited, certain findings are worthy of the attention of surgical personnel. 1. A postoperative infection occurred in a patient who was exposed to a relatively high concentration of airborne Staphylococcus aureus of the so-called epidemic strain 80/81. The attending surgical staff were not nasal carriers of this phage type. 2. Sweeping the operating room floor with a hair broom can introduce Staph. aureus into the air. 3. One Staph. aureus–bearing particle was recovered from the air which was similar to the Staph. aureus found in the nares of two individuals among the surgical staff. 4. Staph. aureus, when present in comparatively large numbers, appears to enter in an explosive manner. This entrance might be attributable to the patient or to recent contact of the operating room staff with a source.

P. O. Box 769 (Mr. Wolf).

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THE GOOD GENERAL PRACTITIONER.—In addition to being the most numerous section of the medical community, the general practitioners are also the most important. . . . He . . . best knows the family history and environment of the patient, and he alone is the arbiter as to where to send the patient in case expert opinion or special treatment is required. . . . The doctor has the highest of all human privileges, to wit, helping others in their troubles, relieving them in their pain, and comforting them in their sorrows. This must, and should, compensate for all the long hours of work, all the heavy responsibilities, and the commonly all too meager financial reward. . . . Now to consider the qualities that should tend to make one a success in general practice. . . . To my mind, the really outstanding qualities are kindness, tenderness and understanding, which enable one to treat the patient rather than the disease. Never forget, no matter how interesting the clinical picture may be, that you are there first and foremost to bring relief to a human being. In nine cases out of ten you will find out that peace of mind is what is being sought rather than ease of body. Especially in the age we live in, when education is more universal . . . and the radio and Press of extreme power, you will tend to find that every pain in the chest is imagined to be heart disease, and every abdominal pain is due to cancer. Fear is the real bogey you will have to fight, and you can't fight fear unless you understand men. Hence, I stress once more that you will be treating human beings more than disease.—D. W. Macnamara, M.B., B.Ch., The Good General Practitioner, *The Journal of the Irish Medical Association*, February, 1959.

PSEUDO-PSEUDOHYPOPARATHYROIDISM

REPORT OF A CASE WITH ASSOCIATED CARDIOPULMONARY SYNDROME OF OBESITY

Thomas R. Casey, M.D., Bernhard B. Fast, M.D.
and
Reuben M. Cherniack, M.D., Winnipeg, Manitoba, Canada

The term pseudo-pseudohypoparathyroidism is applied to a condition in which a patient with dyschondroplasia and ectopic bone formation responds to administration of parathyroid hormone. The patient here described, a 61-year-old woman, had a round facies, short stature, shortened metacarpals and metatarsals, symmetrical deformities of both elbows, and lens opacities. Her response to parathyroid hormone was not studied, but determinations of calcium and phosphorus in her blood suggested normal parathyroid function. Hospitalization was made necessary by excessive drowsiness associated with alveolar hypoventilation and obesity. The patient left the hospital much improved after achieving a weight-reduction of 9 kg. (20 lb.).

In 1942, Albright and others [1] described a familial metabolic disorder characterized by clinical and biochemical signs suggestive of hypoparathyroidism along with a number of physical defects including short stature, broad face, poor mental development, short metatarsals and metacarpals, and ectopic calcification. Intravenous administration of parathyroid hormone (Parathormone) failed to produce the expected phosphate diuresis, and normal or hypertrophied parathyroid glands were noted. This was considered to represent a failure of end-organ response, and the term pseudohypoparathyroidism was coined. In 1952, Albright and others [2] reported the case of a patient with all the physical characteristics of pseudo-hypoparathyroidism but having normal serum calcium and phosphorus levels. The term pseudo-pseudohypoparathyroidism was suggested for this entity and, since the original description, six cases have been reported. The case of pseudo-pseudohypoparathyroidism reported here was complicated by the patient's obesity and alveolar hypoventilation.

Report of a Case

A 61-year-old housewife was admitted to hospital on April 22, 1958, complaining of excessive drowsiness. She had had difficulty with her arms since birth. Her parents and siblings were apparently normal. She had no children.

The patient's face was round and she was short of stature, being 4 ft. 10 in. (147 cm.) tall. Her weight on admission was 228.5 lb. (113.6 kg.) (fig. 1*A*). Marked mental impairment was noted, and cyanosis, which increased with recumbency or sleep and decreased in the upright position or with hyperventilation. Her right pupil was irregular in shape and there were bilateral lenticular opacities.

The patient was obese, with increased thoracic kyphosis and anteroposterior diameter. There was generalized dulness to percussion over the chest, breath sounds were distant, and there were no adventitious sounds. The apex beat was not palpable. Blood pressure was 140/80 mm. Hg. The abdomen was barrel-shaped and no organs or masses could be felt through the obese abdominal wall.

The patient's legs were short, with pitting edema halfway to the knees. She had difficulty extending both elbows, and movement in the right shoulder was painful and reduced in all directions. Both hands were short and there was displacement of the first, second, and fifth metacarpophalangeal joints on the right hand and the second, fourth, and fifth on the left, with dimpling of the knuckles (fig. 1*B*). No finger clubbing was noted, but the nail beds were deeply cyanotic. Her lower extremities appeared structurally normal.

From the Department of Medicine, University of Manitoba, and the Clinical Investigation Unit, Department of Medicine, Winnipeg General Hospital. Dr. Cherniack is a Markle scholar in medical science.

External genitalia were normal, as was the distribution of hair. No tendon reflexes were elicited and plantar responses were normal. Intertrigo was present in the folds of fat, particularly beneath the breasts.

Laboratory studies yielded the following results: No abnormalities in the urine; hemoglobin level was 16.5 Gm. per 100 ml., erythrocytes 5,500,000 per cubic millimeter; hematocrit value 58%; blood sedimentation rate (Westergren) 7 mm. per hour; and leukocytes, 8,500 per cubic millimeter with a normal differential and platelet count. Serum calcium and phosphate levels, measured on two occasions, were 10.7 and 10.4 mg. per 100 cc., and 4.2 and 5.0 mg. per 100 cc. respectively. Alkaline phosphatase levels, measured on the same occasions, were 10 and 11 King-Armstrong units. The electrocardiogram showed S-T segment depression in 1, 2, aVL, aVF, and from V_2 to V_6. The electroencephalogram was of low amplitude but no abnormality was seen.

Chest roentgenograms showed the heart to be increased in width, with abnormal hilar shadows and pulmonary vascular detail. Skull roentgenograms revealed a small area of calcification or ossification in the falx cerebri. Roentgenograms of the right hand demonstrated shortened first, second, and fifth metacarpals, while the second, fourth, and fifth metacarpals were shortened in the left hand (fig. 2*A*). The metatarsals of the left great toe were considerably shortened. Roentgenograms of both elbows showed identical deformities (fig. 2*B*), the proximal end of the radius being distorted and articulating with the anterior surface of the humerus close to the capitellum, which was irregular. There was excessive new bone formation around the proximal end of the radius and a suggestion of ectopic ossification around the joint. Roentgenograms of the spine revealed no further abnormalities.

It was impossible to complete respiratory function studies because of the patient's lack of comprehension and mental dulness. Arterial blood and blood volume studies are shown in the table. It can be seen that there was alveolar hypoventilation with hypoxia, hypercapnia, and moderate polycythemia and that 15 seconds of hyperventilation produced an improvement in the level of blood gases.

Treatment in hospital consisted of an 800-calorie reducing diet, D-amphetamine in daily doses of 10 mg. and analgesics. At discharge from hospital the patient had lost 20 lb. (9.1 kg.) and there was distinct improvement in her color, energy level, and quality of breathing.

Comment

The physical features of a round face, short obese stature, mental dulness, short metatarsals and metacarpals, and normal serum calcium and phosphorus values support the diagnosis of pseudo-pseudohypoparathyroidism. There was no calcification of the basal ganglions, but ectopic ossification

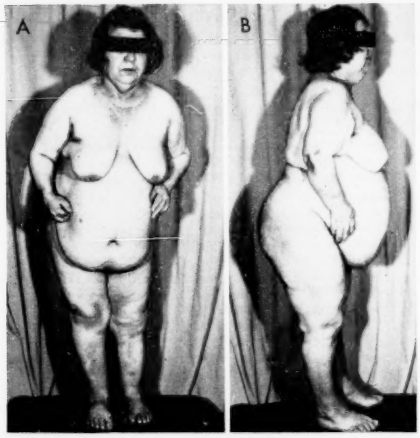

Fig. 1.—Patient with pseudo-pseudohypoparathyroidism; short stature, obesity, deformed arms, and dimpling of knuckles. *A*, anterior view; *B*, lateral view.

was present. The lenticular opacities and the diffuse, low-voltage electroencephalogram are other features previously described. The patient's response to parathyroid hormone was not determined, but the levels of calcium and phosphorus suggest normal parathyroid function. The low-voltage electroencephalogram is of interest but should perhaps not be attributed to this syndrome since hypoxia and hypercapnia may be reflected as nonspecific electroencephalographic changes.[3]

The association between obesity and alveolar hypoventilation, secondary polycythemia, and cor pulmonale in the absence of pulmonary disease has recently received considerable attention.[4] The possibility of alveolar hypoventilation with obesity was considered when the patient was noted to be deeply cyanotic and to twitch while asleep. When first admitted she slept almost constantly if not disturbed. She was always startled when aroused, and took several quick breaths which improved her

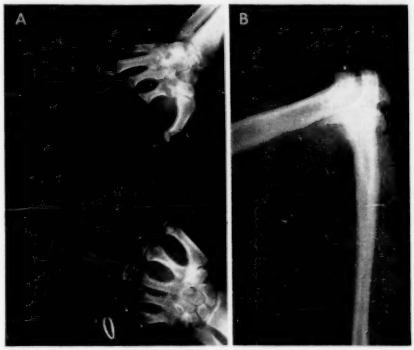

Fig. 2.—*A*, roentgenogram of both hands; shortened first, second, and fifth metacarpals of right hand and second, fourth, and fifth metacarpals of left. *B*, roentgenogram of elbow; irregularity and displacement of elbow joint with excessive bone formation around proximal end of radius.

color. The findings of reduced minute volume, hypoxia, and hypercapnia with increased blood volume, increased red blood cell mass, and elevated hematocrit values in the absence of clinical pulmonary disease confirmed the diagnosis of alveolar hypoventilation and secondary polycythemia. These studies were obtained while the patient was

Pulmonary Function and Blood Volume Studies

Study	Patient	Normal
Ventilation,* liter/min.	6.8	6-10
Respiratory rate	20	
Tidal volume, cc.	340	500-800
Dead space, cc.	160	120-180
Dead space/tidal volume ratio, %	47	<30
Arterial, at rest		
pO_2, mm. Hg	66(88)†	>90
pCO_2, mm. Hg	46(42)†	35-44
pH	7.40	7.35-7.45
hematocrit value, %	58	
Blood volume (ml./sq. m.)		
total	2,900	2,250
plasma	1,216	1,270
red blood cells	1,682	986

* Body temperature, ambient pressure, saturated with water.
† Value in parentheses obtained during hyperventilation.

awake. Her striking color changes when asleep suggest that the gas tensions would have been markedly abnormal had they been obtained while she was asleep. That these findings were due to the presence of obesity can only be postulated since it was not possible to repeat the studies after

the patient's 20-lb. weight loss, but the clinical improvement indicates the possible association, in her case, of excessive weight and altered arterial blood gases. In addition, the marked improvement in arterial oxygen tension after slight hyperventilation further suggests that the lungs were normal. It is of interest that it was the symptoms resulting from alveolar hypoventilation which led to the hospital admission of this patient.

In addition to the original case six patients with pseudo-pseudohypoparathyroidism have been reported in the world literature. In 1955, Miles and Elrick [5] described a 25-year-old woman with the typical physical features including lenticular opacities but without ectopic calcification. Roche and others [6] described a 40-year-old man with dyschondroplasia and ectopic calcification but normal configuration and facial contour. In addition, he was noted to have blue scleras. Wallach and others [7] in October, 1956, described a 24-year-old man with striking subcutaneous ossification but neither short metacarpal and metatarsal bones nor short stature and round face. The dyschondroplasia was restricted to short distal phalanges. He also had gout, unexplained splenomegaly, lymphoid hyperplasia, and asymptomatic rheumatoid spondylitis. McNeely [8] and others described a 24-year-old man manifesting brachydactylia and short stature with soft tissue calcification and ossification. Seringe and Tomkiewicz [9] recently reported two sisters, aged 15½ and 10½, who were short, bordering on dwarfism, with short necks, slightly rounded facies, and pronounced brachymetapody. In both patients and in the otherwise normal mother blue scleras were noted. In 1956, Cusmano and others,[10] in a report of six cases of pseudo-hypoparathyroidism, mention that the mother of one of the patients in the series showed short stature, short metacarpals and metatarsals, and undoubtedly represented a further case of pseudo-pseudohypoparathyroidism.

Albright's concept of the syndrome of pseudohypoparathyroidism was that it consists "of several unrelated genetic defects which occur simultaneously," including unresponsiveness to parathyroid hormone, dyschondroplasia, and ectopic bone formation. The term pseudo-pseudohypoparathyroidism was applied by Albright to individuals with the second and third defects but without the first; thus, the initial report on pseudo-pseudohypoparathyroidism tended to confirm the view that dyschondroplasia and ectopic bone formation were genetically separate from the failure of responsiveness to parathyroid hormone. The term pseudo-pseudohypoparathyroidism is perhaps an unfortunate one since it has suggested to some that it is a forme fruste of pseudo-hypoparathyroidism. Discovery and definition of the metabolic errors distinguishing these defects will undoubtedly provide a more useful term.

Summary

A 61-year-old woman with round facies, short stature, shortened metacarpals and metatarsals, lens opacities, and normal parathyroid function fulfilled the criteria for a diagnosis of pseudo-pseudohypoparathyroidism. Her excess weight and abnormal respiratory function satisfied the necessary requirements for the diagnosis of alveolar hypoventilation associated with obesity. Excessive drowsiness associated with the alveolar hypoventilation probably precipitated the hospital admission.

700 Bannatyne Ave. (3) (Dr. Cherniack).

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TREATMENT OF ACUTE TYPHOID WITH SYNNEMATIN B

REPORT OF A CASE

Norman D. Henderson, M.D., Lansing, Mich., Fred C. Garlock, M.D., Grand Ledge, Mich.
and
Birger H. Olson, Ph.D., Lansing, Mich.

A patient with a severe systemic infection was treated unsuccessfully with penicillin, chloramphenicol, and a third unidentified antibiotic. Salmonella typhi was cultured from blood and feces and was found sensitive to synnematin B. The condition of the patient had become very critical when therapy with synnematin B was begun, and it continued to be critical during the first 48 hours. Thereafter, improvement was rapid. Eleven days after discharge the patient was readmitted with typhoid peritonitis ascribed to rupture of an infected ovarian cyst. From this setback the patient recovered without any antibiotic treatment, and subsequent tests indicate that she is not a carrier. Her son and father-in-law also had mild forms of typhoid; they recovered on treatment with chloramphenicol.

The use of synnematin B in the treatment of typhoid in infants and children in the Hospital Infantil, Mexico City, was reported in 1955 by Benavides and associates.[1] Synnematin B was shown to be effective in the treatment of acute typhoid as indicated by the fact that no deaths or perforations were observed in this series of cases. It is of interest to note that Salmonella typhi was cleared from both blood and feces of all patients and that no indications of toxicity referrable to the drug were reported. Of further significance is the fact that the development of the carrier state has not been observed in any patient adequately treated with synnematin B.

The present report is believed to be the first paper published on the clinical use of synnematin B in typhoid in the United States. It is an account of acute typhoid in an adult which responded dramatically to treatment with synnematin B after failure of chloramphenicol (Chloromycetin) to effect a favorable clinical response.

The patient's family, consisting of husband, wife, and son, entered Mexico for a vacation on Feb. 6, 1956. On Feb. 16, the wife developed mild diarrhea which persisted until Feb. 20. The family returned to Michigan on Feb. 25. On Feb. 27 the patient noted a return of malaise and diarrhea and had a chill, and on Feb. 29 she developed fever, headache, cough, and occasional chill. Treatment for three days with penicillin and an unidentified wide-spectrum antibiotic ordered by a local physician was ineffective. From March 3 to March 9 she had no treatment and became progressively worse. On March 9, one of us (F. C. G.) made a clinical diagnosis of typhoid and started oral treatment with chloramphenicol (250 mg. every six hours). The patient's condition deteriorated, and she was admitted to the hospital on March 10, 1956. A summary of this case is presented in the figure.

Therapy with intramuscularly given chloramphenicol was also instituted on admission. S. typhi was isolated from both blood and feces on March 11 and 12. Results of the Widal agglutination test done on March 11 were reported as follows: S. typhi O antigen 1:10,240, H antigen 1:80, and S. paratyphi B 1:160. The patient's condition continued to deteriorate while she was on chloramphenicol therapy. On March 13, 1956, she was semicomatose and bleeding grossly from the intestine, had a spiking temperature with peaks at 104.4 F (40.2 C, oral temperature), and was considered to be in a critical condition.

Physical examination on March 12, 1956, prior to starting synnematin B therapy, revealed an acutely ill, well-nourished woman, 37 years of age, weighing 212 lb. (96.1 kg.). She was semicomatose, had a nonproductive cough, and apparently had some difficulty in hearing. Oral temperature was 104.4 F, the pulse regular at 100 per minute, blood pressure 130/84 mm. Hg, and respiration rate 32 per minute. The positive findings may be summarized as follows: typical rose spots on the abdomen, otitis media with hearing loss on the right side, acute bronchitis, and abdominal distention with tenderness which was interpreted as indicating impending perforation of the intestine. On March 12, the blood analysis was reported as follows: hemoglobin level 12.8 Gm.%, 4,010,000 red blood cells per cubic millimeter, and 4,100 white blood cells per cubic millimeter (42% segmented neutrophils, 23% nonsegmented neutrophils, and 35% lymphocytes). Urinalysis on March 12 revealed a specific gravity of 1.005, 3+ albuminuria, and 4-10 white blood cells and 3-6 red blood cells per high-power field. In view of these physical and laboratory findings, the diagnosis of typhoid was confirmed.

The cultures of S. typhi isolated from the blood and stool on March 11 were sensitive to less than 1 unit per milliliter of synnematin B. Chloramphenicol therapy was stopped after the morning dose on March 13. Therapy with synnematin B was started at 7:30 p. m. of that day with a dosage schedule of 80,000 units per kilogram of body weight per day in divided doses, intramuscularly, every four hours. In addition to synnematin B, this patient received supportive care and aspirin for temperature control. No other antimicrobial substances were used after synnematin B therapy was started.

During the first 48 hours of synnematin B therapy, the patient continued to be in a very critical condition. Rectal bleeding continued for about 24 hours but was not observed again after the first full 24-hour period of this therapy. After 48 hours of synnematin B therapy there was a dramatic change in the patient's condition. On the morning of March 16, she felt considerably improved and evidenced interest in food for the first time since being admitted to the hospital. The hearing loss on the right side disappeared, as did her cough. She was well oriented as to time and place. From this

From the Michigan Department of Health, Division of Laboratories (Drs. Henderson and Olson). Dr. Garlock is in private practice.

point on, she continued to make steady improvement with no indication of relapse being observed. However, her clinical course was not without incident.

On the second day of therapy, the patient developed a transitory gallop type of cardiac rhythm, followed by auricular fibrillation which was accompanied by an apical systolic cardiac murmur. In view of the tachycardia which was also present, it was felt that a complication was imminent. The abdomen was tender but not distended, and intestinal sounds were present. Perforation did not occur. The incident passed and the cardiac arrhythmia did not recur.

After the patient received 10 grains (0.65 Gm.) of aspirin when her temperature was 104.8 F (40.4 C) at 12:30 p. m. on March 14, the temperature fell progressively and by 7:30 p. m. a temperature of 95.4 F (35.2 C) was recorded. Subsequently, the dose of aspirin was limited to 5 grains (0.32 Gm.). (Osler and McRae [2] have cautioned against too vigorous use of antipyretics in typhoid.) Fever persisted throughout the course of therapy, resolving gradually by lysis; this situation has also been observed by Benavides and associates.[1] The drug therapy was stopped on March 31. The patient's condition continued to improve, and she was discharged from the hospital on April 6, 1956.

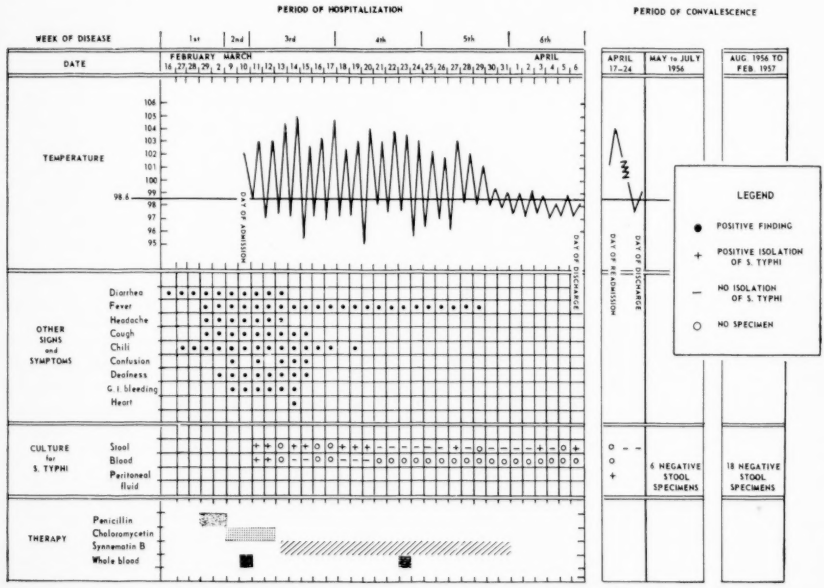
On April 17, 1956, she was readmitted to the hospital because of abdominal pain and distention. Laparotomy revealed a ruptured ovarian cyst, subsiding inflammation of the appendix, and peritonitis. A pure culture of S. typhi was isolated from the peritoneal contents. No evidence of perforation of the intestines was observed. This incident presented several unusual aspects, which will be discussed in a separate report.[3]

Because the findings at operation did not reveal intestinal perforation and there was nothing to suggest a relapse, it was decided not to give a second course of synnematin B therapy. The abdomen was closed with drainage, and the patient made an uneventful recovery. She was discharged from the hospital on April 24, 1956.

As required by the Michigan Regulations for the Control of Communicable Diseases,[4] follow-up studies were done for three months by the attending physician (F. C. G.) and the Eaton County (Michigan) Health Department with examinations of stool specimens for S. typhi. In addition, follow-up examinations were given for a period of one year with monthly examinations of stool specimens and for another year with examination of occasional stool specimens. The last positive isolation of S. typhi from the intestinal tract of this patient was on April 6, 1956. It is therefore assumed that she is not a carrier of S. typhi.

While this patient was in the hospital with typhoid, her 12-year-old son also was hospitalized and subsequently shown to have a mild case of typhoid. He was placed on chloramphenicol therapy and made an uneventful recovery, being discharged on March 24, 1956. He was also given follow-up examinations, and stool specimens were examined by the Eaton County Health Department. S. typhi was isolated from his specimens on April 30 and May 26, 1956. All stool specimens submitted since May 26, 1956, have been negative. According to the definitions set forth in the regulations, this boy would be classified as a convalescent typhoid carrier.

The father-in-law of the patient was in close contact with her during the early phase of her illness. He developed a mild case of typhoid, but he refused hospitalization and was treated at home with chloramphenicol. Stool specimens submitted by him on March 28 and 29 and on April 5, 1956, were positive for S. typhi. All subsequent specimens have been negative. This man would also be classified as a convalescent typhoid carrier. The husband of the patient did not develop any evidence of infection with S. typhi.



Graphic summary of case of typhoid treated with synnematin B.

Comment

The response of a patient with typhoid to treatment can be judged from several points of view, including the well-being of the patient, clearance of S. typhi from the blood stream and intestinal tract, response of the fever, presence or absence of complications, duration of illness, presence or absence of toxicity, development of the carrier state, and death rate. Several of these points are applicable to the judgment of effectiveness of synnematin B in the treatment of the case of typhoid presented in this report.

As reported by Benavides and associates,[1] a definite improvement was noted in the general well-being of the patient after the first 48 hours of synnematin B therapy. At this point in the course of the disease, there was a renewed interest in food and increase in appetite, a decrease in toxic manifestation, and an improvement in mental alertness which also characterized this case. At the time synnematin B therapy was instituted, chloramphenicol had been used for four days and there was imminent danger of intestinal perforation. Smadel and co-workers [5] have emphasized the fact that serious complications, such as intestinal hemorrhage and perforation, may be expected to occur in patients treated with chloramphenicol, since the stage is generally set for such developments before therapy is instituted and time is usually required for the healing of the typhoidal lesion of the intestine. However, rectal bleeding stopped after our patient received synnematin B therapy for 24 hours and was not observed again. Inflammation of the ears and respiratory system, as represented by otitis media and bronchitis, resolved promptly without the development of mastoiditis or pneumonia. S. typhi was cleared from the blood within 24 hours after starting synnematin B therapy.

The typhoid organism was not cleared from the stool until 25 days after treatment with synnematin B was started. S. typhi was isolated from the stool specimen collected six days after antibiotic therapy was concluded. However, the organism was not isolated from the stool of this patient on any subsequent occasion. In other words, the carrier state did not develop in this patient. This result may be constrasted with that of the son, who was treated with chloramphenicol and continued to excrete S. typhi for at least two months after treatment. The fact that infants and children treated adequately with synnematin B do not develop into chronic carriers was reported in the series treated by Benavides and associates.[1] This report may be contrasted with the recent publication of O'Connor,[6] who stated that 1% of patients treated with chloramphenicol became carriers, as contrasted with 2% of the control group who received nonspecific therapy. This difference in carrier rate among the treated and control groups was not considered to be statistically significant.

It is well known that the carrier state develops most commonly in adults and that chronic carriers of S. typhi are more common among adult females than among adult males or children. Evidence summarizing the use of synnematin B in infants and children and in the one adult reported here indicates that the chronic carrier state does not develop among adequately treated patients. However, the influence of synnematin B on the development of the carrier state in adults awaits further evaluation.

During the first two days of synnematin B therapy, the patient continued to be critically ill with a rising temperature. Previous work [7] with synnematin B has shown that the drug is bactericidal in its action. It is our belief that this bactericidal action, combined with the defense mechanisms of the host, resulted in the release of a considerable quantity of typhoid endotoxin into the circulation. This substance, known to be pyrogenic, is thought to be responsible for the continued fever and chills observed in this patient during the course of therapy with synnematin B.

The possibility must also be considered that synnematin B is pyrogenic and that the drug was responsible in part for the high temperature. The fever curve indicates that the temperature was returning toward normal by lysis during the last seven days of therapy. Also, the injections were continued for 30 hours after the patient became afebrile. Our own studies [8] in human volunteers, patients with urinary tract infections, and animals have not revealed any pyrogenic tendency on the part of synnematin B. Therefore, we have concluded that synnematin B is not pyrogenic. No evidence of toxicity which could be attributed to synnematin B was observed in our patient. A similar observation was made by Benavides and assocates.[1]

The isolation of S. typhi from the peritoneal contents at the time of the second admission raises the questions of perforation and relapse. There was no evidence to support a diagnosis of relapse. Therefore, the patient was not treated further with synnematin B.

Since bacteriological examination of the liquid contents of the peritoneal cavity revealed a pure culture of S. typhi, in all probability it did not arise from a perforation of the intestines. When intestinal perforation does occur, the peritoneal contents usually yield a mixed culture, representative of the contents of the intestines at the time of perforation.

The biopsy of the cyst during laparotomy revealed the typical structure of an endometrial cyst of the ovary. If this cyst contained S. typhi after the septicemia of the acute illness, a rupture of the cyst would produce a pure culture typhoid peritonitis. Therefore, the most probable explanation would be that the S. typhi was walled off in the cyst during the acute phase of the disease. This conclusion would agree with the coincidence between the ruptured ovarian cyst and the peritonitis

without perforation, as well as the pure culture of S. typhi reported by the bacteriologist. A more detailed discussion of this incident will be reported in a separate paper.[3]

Summary

A patient with acute typhoid was treated, with good response, with synnematin B. No perforation occurred, the patient rapidly regained a feeling of well-being, and there was no evidence of toxicity after the use of synnematin B. The patient developed peritonitis associated with a ruptured endometrial cyst of the ovary early in the convalescent period. The carrier state did not develop, as evidenced by follow-up studies extending over a period of two years.

Michigan Department of Health, Division of Laboratories, DeWitt Road (4) (Dr. Henderson).

J. M. Cook, M.D., director, and the staff of the Eaton County (Michigan) Health Department assisted in completing surveillance during convalescent period.

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FAVORABLE RESPONSE IN THE CLINICAL TREATMENT OF CHRONIC ALCOHOLISM

Robert E. Thomas, M.D., Lester H. Gliedman, M.D.,† Julia Freund, M.A., Stanley D. Imber, Ph.D.
and
Anthony R. Stone, M.S.S.W., Baltimore

The community clinic approach for the rehabilitation of chronic alcoholics is being used with increasing frequency in the United States. In line with this trend, Maryland has established six county alcoholic rehabilitation clinics through the collaboration of state and local health departments. These were set up as part-time evening clinics and staffed with personnel representing the traditional psychiatric team plus a public health nurse. Treatment methods consisted of individual and group treatment of the alcoholic and occasionally of the spouse. In order to develop, extend, and improve the program, it was felt necessary to appraise the effectiveness of the services offered. A survey was initiated to meet this need. One of the major goals was the identification of some of the factors which contribute to a favorable outcome in the clinical treatment of alcoholism. In this paper only data relevant to these favorable factors are described.

The records of 57 men and 20 women patients in six county rehabilitation clinics for alcoholics were studied in order to identify the factors favoring recovery. Treatment included both individual and group psychotherapy. Criteria of improvement included the amount or frequency of alcohol consumption, family and social adjustment, occupational adjustment, and physical appearance, and 42% of the patients improved on three or more of these criteria. The greatest improvement was found in those who attended the most treatment-sessions, whose spouses participated in the sessions, and whose relatives received routine social service contacts. The people attracted to these clinics were of a socially stable type in extreme contrast to the alcoholic stereotype. The unusually favorable results obtained demonstrate the importance of considering groups, especially the family, in future planning for the outpatient treatment of chronic alcoholism.

Chief of the Division of Mental Health, Maryland State Department of Health (Dr. Thomas); Assistant Professor of Psychiatry, Johns Hopkins University (Dr. Gliedman); Public Health Nursing Consultant, Maryland State Department of Health (Miss Freund); Assistant Professor of Medical Psychology, Johns Hopkins University (Dr. Imber); and Instructor in Psychiatry, Johns Hopkins University (Mr. Stone).
†Dr. Gliedman died May 20, 1958.

A multidisciplinary research team developed special rating scales, information schedules, and interviews to evaluate the treatment results of the six clinics. These scales were given to the therapists who completed them retrospectively for each of the patients in treatment during the three-month survey period. The sample of 77 patients and 12 spouses was studied from the standpoint of selected personality attributes, amount and type of therapy, attendance at clinics, and therapeutic changes as measured by multiple criteria.

TABLE 1.—*Percentage Change in Clinical Population of Seventy-seven Patients on Four Criteria of Improvement as Compared to Initial Status*

Rating	Drinking (Amount or Frequency)	Family and Social Adjustment	Occupational Adjustment		Physical Status*
			Employed	Unemployed	
Abstinent	35				
Much less	17				
Somewhat less	17				
Unchanged	26				
Somewhat more	3				
Much more	...				
Out of control	3				
Better		51	40	45†	39
About the same		42	53	45	59
Worse		7	8	10	3

* Rating based on appearance only.
† Now employed.

These criteria included (1) drinking (amount and/or frequency) as compared to initial status, rated on a seven-point scale from "abstinent" to "out of control," (2) family and social adjustment, (3) occupational adjustment (depending on whether or not the patient was employed at the start of treatment), and (4) physical status as compared to initial impression of physical condition, all compared to initial status and rated on a three-point scale from "better" to "worse."

Results

A total of 77 patients was seen in the clinics, of whom 57 (74%) were men and 20 (26%) were women. The average age was 41 years. Sixty-five per cent of the patients were married and 70% were employed. Approximately one-third of the referrals were made through the family physician; about 10% each were self-referred, referred from courts, and referred from other social agencies including public welfare; referrals from relatives comprised 6.5% and from Alcoholics Anonymous, 3.9%; and the remainder represented miscellaneous multiple sources of referral.

Treatment included both individual and group psychotherapy. Duration of treatment varied from 2 to 37 weeks, the average being 19 weeks. The average number of treatment sessions per patient was 10.3. Group patients remained in treatment for an average of 16.7 sessions, whereas patients in individual treatment remained for an average of only 6.4 sessions. Approximately two-thirds of all patients attended treatment regularly, that is, they consistently kept most of their scheduled appointments. In addition, this population was unique in that in about one-half of the cases the patients' relatives had some contact with social workers and public health nurses in the clinics during the course of the patients' treatment. Though frequently brief, and not involving treatment in the traditional sense, these contacts were concerned with family problems related to drinking. It is of special interest that 12 spouses of patients were included in a more formalized treatment program.

Progress of patients in treatment in terms of the criteria mentioned previously is summarized in table 1. It is of particular significance that 51% of the patients showed improvement in family and social adjustment alone. Twenty-three per cent of the patients were reported by their therapists to have improved on all four of the criteria employed; 19% improved on three of the four criteria; 12% on two criteria; 15% on one criterion; and 32% showed no improvement on any of the four criteria. The fact that 42% of the patients improved on three or more of the criteria is indicative of the substantial therapeutic progress of the patient population.

Table 2 shows the relationship between improvement on one or more criteria and the amount of treatment. The population was divided into those patients who had eight or more therapy sessions and those who had less than eight. Of the patients who had eight or more sessions 80% improved on two or more of the four criteria. In contrast to this group, only 26% of those with less than eight sessions of treatment showed improvement on two or more criteria. The significance of the relationship between length of treatment and improvement on the multiple criteria is highlighted by the fact that 53% of the patients with less than eight treatment sessions did not show improvement on a single criterion.

It is recognized that the improvement noted above may be only of a temporary nature, and a follow-up study would be necessary to ascertain the permanence of these positive changes. Nevertheless, the findings of this cross-sectional study seem to warrant the conclusion that a favorable response to treatment was demonstrated.

TABLE 2.—*Relationship Between Amount of Treatment and Improvement Criteria*[a]

Criteria Showing Improvement	Patients				Total No.
	0-7 Sessions		8 or More Sessions		
	No.	%	No.	%	
0 or 1	25	74	7	20	32
2 to 4	9	26	28	80	37
Totals	34	100	35	100	69

[a] Data on all four criteria available only for 69 of the 77 patients in survey population. Chi-square = 19.9, $p<0.001$.

As noted previously, the ratio of male to female patients was approximately 3:1. Even though the female patients attended fewer sessions than did the men, they showed a slightly greater trend toward improvement. This improvement consisted of positive change on more of the four criteria than was true for the males and included greater re-

duction in drinking. Fifty-nine per cent of the women showed improvement on three or more of the criteria as compared to only 37% of the men. Approximately twice as many men as women showed no improvement on even a single criterion. Table 3 summarizes the amount of improvement in relation to patient's sex and to participation or nonparticipation of patient's spouse.

TABLE 3.—*Relationships Between Sex of Patient, and Participation or Nonparticipation of Spouse in Concurrent Therapy, and Improvement*

Patients		Treatment Sessions, Mean No.	Drinking, Mean Amount*	Percentage Showing Improvement on Criteria†‡				
Type	No.			4	3	2	1	0
Women	20	10.3	1.1	29.4	29.4	17.6	5.9	17.6
Men	57	14.6	1.7	21.1	15.4	9.6	17.3	36.5
With spouses in treatment	11	12.3	0.7	46	27	18	...	9
Without spouses in treatment	58	13.5	2.1	19	17	10	17	36

* Lower score = more positive change, e.g., 0.0 = abstinence.
† Because frequencies in several categories were quite low, categories 3 and 4 and 0-2 were combined.
‡ For the data comparing women and men, chi-square = 2.69, $p < .20$. For the data comparing patients with and without spouses in concurrent treatment, chi-square = 5.06, $p < .05$.

In half of the clinics a limited number of spouses was involved in active treatment in addition to that being given to the patients. Although complete data were available on only 11 of the spouses involved in treatment, this number was sufficient to permit a comparison of improvement on the four criteria between patients whose spouses were included in concurrent treatment and the remaining population. The improvement rate of patients whose spouses were also in therapy far exceeds that of the remaining population, even though the average number of treatment sessions for each of these groups was approximately the same. Of equal importance is the fact that patients whose spouses were in treatment showed greater reduction in amount of drinking. As can be seen in table 3, 73% of the patients whose spouses were in treatment evidenced improvement on three or more of the criteria in contrast to only 36% of the patients whose spouses were not in treatment. The higher quality of improvement can be seen by the fact that 46% of the patients with spouses in treatment showed improvement on all four criteria. Of those whose spouses were not in treatment only 19% showed improvement on all four criteria. Moreover, the improvement of the patients whose spouses were in treatment exceeded the levels achieved on these four criteria by the male and female patients taken separately.

The importance of active concurrent treatment of the spouse is further demonstrated in table 4. Complete data were available for 13 patients whose spouses had routine social service contacts. These were compared with those patients whose families did not receive social service attention and whose spouses were not in concurrent therapy. As can be seen, there is a suggestion of greater reduction in drinking for the 13 patients cited above. Almost three times as many patients with social service contacts showed improvement on all four criteria. However, when the data are analyzed as in table 3, no difference between these two populations is apparent. The effect of social service contacts on improvement appeared to be greater in the population receiving such service, but the improvement was less than that observed in the patients whose spouses had active, concurrent treatment.

TABLE 4.—*Attendance and Improvement of Patients With and Without Social Service Contacts**

Patients		Treatment Sessions, Mean No.	Drinking, Mean Amount†	Percentage Showing Improvement on Criteria‡				
Type	No.			4	3	2	1	0
With social service contacts	13	17.5	1.7	38.5	...	15.4	15.4	30.7
Without social service contacts	45	12.2	2.1	13.3	22.2	8.8	17.6	37.8

* Patients with spouses in concurrent treatment are excluded for this comparison.
† Lower score = more positive change, e.g., 0.0 = abstinence.
‡ Because frequencies in several categories were quite low, categories 3 and 4 and 0-2 were combined. The chi-square test is not significant.

Comment

Treatment of chronic alcoholism remains a major public health problem for which no reasonably effective approach has been developed. The analysis of the community-sponsored alcoholic rehabilitation clinics in Maryland has afforded an opportunity for appraising one of the increasingly popular means of coping with this problem as a first approximation to obtaining data for future program planning.

The three major factors contributing to favorable response to clinical treatment of chronic alcoholism described above raise important issues relative to the patterning of therapy for such patients. The first of these pertains to the nature of the population attracted by community outpatient clinics. As has already been reported,[1] these patients tend to be married and employed. Similarly, the population under study manifested more than the expected social stability and was in extreme contrast to the alcoholic stereotype. Perhaps the large proportion of this kind of alcoholic patient accounts for the substantial periods of therapy duration, regularity of attendance, and high rate of improvement achieved by patients in this study. Certainly these results were contrary to what was anticipated and compare favorably with other types of outpatient populations.[2] The "skid row" stereotype of the alcoholic may have so dominated our thinking that we have been led to underestimate the potential for improvement of the majority of patients who actually seek treatment. This highlights the need to change some of the older concepts pertaining to alcoholic patients, at least those who appear in clinics for help.

Apparently something in the structure of the clinic attracts a certain group of alcoholic patients favorably disposed to treatment. Conceivably, the existence of these alcoholic rehabilitation clinics in a familiar agency, the health department, which already provides a broad range of preventive as

well as clinical services for the family, positively influences the use of and response to these services by the patients. The fact remains that such a group of patients possesses the potential for improvement and the physician must determine those factors relevant to successful clinical treatment.

The second of the findings emphasizes one of the important factors in the recovery of these patients; namely, concurrent treatment of the family, in this case the spouse. One of us [3] has already pointed out some significant contributions of family-oriented treatment for chronic alcoholics. The involvement of the spouse has also been suggested by several other workers.[4] These investigations emphasize alcoholism as a family problem, and the implication is clear that recovery should be sought in the context of the family.

In the present investigation, patients whose spouses were in active concurrent therapy showed a significantly superior improvement in both quality and amount of change. Whether this is due to factors within the patient, the spouse, or both cannot be stated at this time, but it does seem clear that excessive drinking in a family involves more than the drinker alone. The total picture must be taken into consideration within the framework of therapy to facilitate improvement. It is also reasonable to assume that such concurrent treatment will have beneficial effects on other members of the family not immediately involved in the therapy process. Unpublished data recently gathered by us indicate the presence of an alcoholic parent in at least 25% of a group of approximately 100 psychoneurotic outpatients seeking therapy at the Henry Phipps Psychiatric Clinic of Johns Hopkins Hospital. Increased efforts at family treatment should have preventive effects on children growing up with parents who have drinking problems. Moreover, the patients whose relatives received routine social service contacts showed more improvement than those who did not receive such contacts, but less improvement than those whose spouses were in concurrent therapy. This further demonstrates the importance of active concurrent involvement of the family in the patient's recovery process.

The last important finding is that group therapy was possibly more acceptable and more advantageous to these patients than individual therapy. Group patients remained in treatment for more than twice as many sessions as patients in individual therapy. Indirectly associated with this is the finding that, on the whole, improvement depends on total amount of treatment. It is our impression that greater exploitation of the group approach, not only for patients but for spouses and family as well, should be given consideration in future planning of rehabilitation programs for chronic alcoholic patients. One of us [5] has pointed out some of the theoretical aspects of group therapy for chronic alcoholics which make it an advantageous form of treatment for this kind of population.

Summary and Conclusions

Evaluation of the Maryland alcoholic rehabilitation clinics revealed that a group of patients who were married and employed were attracted by the services offered. These patients were not essentially different in many characteristics from other psychiatric outpatients. Patients attended regularly for substantial periods of time and with good results. As a consequence of this study, it seems wise to investigate the factors in the community clinic approach which facilitate the recovery of this special population. Involvement of the family in concurrent therapy and group methods of treatment were related to the excellent response in terms of improvement shown by these patients. From this it is concluded that future planning for the outpatient therapy of chronic alcoholic patients should move in the direction of greater use of techniques which involve the family, including the establishment of family-type clinics and greater use of group treatment methods not only for the patient but also for family members.

2411 N. Charles St. (18) (Dr. Thomas).

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RHEUMATIC ENDOCARDITIS COMPLICATED BY TYPHOID

Herman Sobol, M.D., Newark, N. J.

Laboratory findings can provide an early diagnosis of coexistent rheumatic heart disease and typhoid. A boy 12 years of age was hospitalized because penicillin and sulfonamide compounds failed to control a week-long episode of fever, chills, headache, nausea, and nonproductive cough. He had had rheumatic heart disease (with aortic stenosis and mitral insufficiency) four years before the admission; at the time of admission he had a fever and slow pulse rate. The cardiac state was unchanged as compared to previous examination. Absence of anemia and absence of elevated sedimentation rate and leukocyte count cast doubt on presence of either active rheumatic fever or subacute bacterial endocarditis. A gram-negative bacillus was found in the blood culture. The agglutination reaction was positive for typhoid O agglutinins. The patient was treated for and cured of typhoid with a total of 33.5 Gm. of chloramphenicol over a period of 18 days. No sequelae developed within the subsequent four years.

The early recognition of any bacteremia in a patient with rheumatic heart disease is of utmost importance. A case of rheumatic heart disease complicated by typhoid is reported because of several interesting features: 1. The coexistence of these disorders is extremely rare.[1] 2. The differential diagnosis is more than an academic exercise, because it is vital to proper therapy.[2] Early and adequate specific treatment may be rewarded by cure of the patient, whereas delay or improper treatment may result in a fatal subacute bacterial endocarditis due to a salmonella organism [3] or death may ensue from the ravages of typhoid itself.

Report of a Case

A 12-year-old boy was first seen in February, 1950. He was known to have had heart murmurs since he was 4 years of age. Although there was no classic history of rheumatic fever, the child was described as having aching legs and "growing pains." Of significance also in the history was the fact that two cousins had had rheumatic fever.

On physical examination the pertinent abnormal findings were limited to the heart and consisted of a grade 3 harsh aortic systolic murmur with a thrill and a grade 2 harsh mitral systolic murmur transmitted to the axilla. The mitral first sound was accentuated, and the pulmonic second sound was louder than that of the aortic second sound.

On fluoroscopy there was noted slight enlargement of the left ventricle, but all other chambers appeared normal. The electrocardiogram was normal, and findings on routine hemogram, sedimentation rate determination, and urinalysis were likewise normal. The diagnosis of rheumatic heart disease with aortic stenosis and mitral insufficiency was made. On subsequent yearly visits there was no change in his cardiac status.

On Jan. 23, 1954, I was asked to see the patient at his home and obtained the following history. He had been seen by a physician one week previously because of fever, chills, headache, nausea, and a nonproductive cough of two days' duration. He was given penicillin both parenterally and by mouth. When the fever and chills persisted two days later, sulfonamide drugs were also prescribed. The mother added aspirin each time the temperature went over 101 F (38.3 C), and she stated that this seemed to be the only thing that brought the temperature down but it became elevated again within a few hours. At the time of my examination the only subjective symptoms were anorexia and headache. Physical examination showed the temperature to be 101 F, the pulse rate slow and of good volume, and the cardiac findings essentially unchanged from previous examinations; there were no other significant physical findings. I suggested that the patient be hospitalized, because it was impossible at that time to determine whether he had a recrudescence of rheumatic fever, subacute bacterial endocarditis, or some other febrile disease or infection. The patient was, therefore, admitted to the Presbyterian Hospital, Newark, N. J.

On admission the temperature was 101.8 F (38.7 C), the pulse rate 90 per minute, and respirations 24 per minute. He was immediately given 15 grains (970 mg.) of aspirin, and an order was left for that amount to be given every four hours. It is common knowledge that recurrences occur in 30 to 50% of patients with rheumatic fever after a streptococcic infection,[4] and this may be so slight as to be clinically overlooked. Also, active rheumatic fever may rarely occur with a relative bradycardia.[5]

On Jan. 24 the temperature at 8 a. m. was 103.8 F (39.9 C) in spite of the aspirin. On examination, there were no localizing physical signs and one could not help but comment on the slow pulse rate relative to the height of the temperature.

Associate in Medicine, Presbyterian Hospital, unit of United Hospitals of Newark.

An electrocardiogram obtained that morning showed regular sinus rhythm with a ventricular rate of 88 per minute, P-R interval 0.12 seconds, and QRS complex 0.06 seconds. Thus, there were no electrocardiographic abnormalities. Meanwhile, blood was drawn for a hemogram, heterophil agglutination test, sedimentation rate, and agglutination tests for typhoid, paratyphoid, Brucella, and Proteus OX_{19}. Blood for cultures was drawn at noon, 4 p. m., 8 p. m., and midnight. A routine urine study was done, and urine for culture was taken.

The results of urinalysis, sedimentation rate determination, and blood cell count were reported as follows: urine: specific gravity 1.012, 8-10 leukocytes per high-power field, and other findings normal; hemogram: hemoglobin level 14 Gm. per 100 ml. (84%), red blood cell count 4,460,000 per cubic millimeter, and white blood cell count 6,100, with 31% segmented neutrophils, 4% monocytes, 6% stab cells, 1% eosinophils, and 58% lymphocytes (a rare atypical lymphocyte was seen); and sedimentation rate 8 mm. per hour (Westergren).

These findings tended to cast doubt on the diagnosis of active rheumatic fever and the existence of subacute bacterial endocarditis because of the absence of anemia and the lack of elevation of the sedimentation rate and the leukocyte count. Salicylates, however, will depress the sedimentation rate to some extent.[6]

The next day, two days after his admission, the temperature remained elevated and the pulse rate slow and the patient complained of pain in the left elbow which was tender on movement but was without redness or swelling. He appeared lethargic, but there was otherwise no change in physical findings. On this day the following laboratory reports were returned: heterophil agglutination positive in a 1:7 dilution, typhoid H agglutinin positive in 1:80 dilution, typhoid O agglutinin positive in 1:320 dilution, paratyphi A negative in all dilutions, Brucella abortus negative, and Proteus OX_{19} negative. The blood culture taken at noon the previous day showed no growth. The 4 p. m., 8 p. m., and midnight specimens, however, showed a gram-negative bacillus. With this presumptive evidence of salmonella infection the patient was started on chloramphenicol (Chloromycetin) therapy.

The next day, three days after admission, the patient was still febrile and had rose spots on the abdomen and lower thorax anteriorly and the tip of the spleen was palpable. A second hemogram showed about the same hemoglobin level and red blood cell count, but the white blood cell count was 4,220 per cubic millimeter. Agglutination reactions at this time showed a rising titer of typhoid O agglutinins, which was now positive in a dilution of 1:640. Specific serum had established the diagnosis by a positive agglutination of the organism obtained on culture.

The next day the patient was transferred to the Essex County Isolation Hospital at the request of the board of health. Follow-up studies showed the titer for typhoid O agglutinin had risen to 1:800. Urine and stool cultures were, however, negative during the complete course of the disease, no doubt due to the specific treatment.

There were many questions that gave food for thought. Had the typhoid bacillus implanted itself on the damaged valves? After all, bacteremia and susceptible valves, the two conditions necessary for subacute bacterial endocarditis, were present. How long must treatment continue, and what are the accepted doses of chloramphenicol in this type of case?

Both answers were based on the treatment of typhoid itself rather than on the coexistence of the two diseases. In 18 days of treatment the patient had a total dosage of 33.5 Gm. of chloramphenicol. Stool cultures on three successive days after this treatment were negative, and the patient was then discharged as cured of typhoid. He has shown no sequelae after four years.

Comment

The differential diagnosis of prolonged fever in a patient with rheumatic heart disease includes not only active rheumatic fever and subacute bacterial endocarditis but also unrelated infectious diseases, collagen vascular diseases, neoplastic diseases, especially lymphomas, blood dyscrasias, and drug reactions.[7] This case demonstrates the need for a thorough diagnostic study in such patients before embarking on a program of prolonged treatment for subacute bacterial endocarditis without a positive culture.[8]

It is interesting to note that subacute bacterial endocarditis and typhoid have many nonspecific features in common, namely, headache, malaise, chills, fever, cough, sweats, a skin rash, abdominal pain, palpable spleen, anemia, and arthritis or arthralgias. Definitive laboratory studies provide the differential diagnosis.

Summary

In a rare case, rheumatic heart disease was present with typhoid. Early diagnosis of bacteremia in patients with chronic rheumatic valvular disease is important.

413 Mt. Prospect Ave. (4).

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ARTERENOL THERAPY FOR SHOCK AFTER ACUTE MYOCARDIAL INFARCTION AND PULMONARY EMBOLIZATION

Albert J. Miller, M.D.
and
Edgar A. Moser, M.D., Chicago

Arterenol (norepinephrine [Levophed]) is a naturally occurring substance which is the adrenergic nerve transmitter.[1] Kaindl and Lindner,[2] in 1950, and Liljedahl and Norlander,[3] in 1951, each reported its successful use in one patient with shock after myocardial infarction. Birke,[4] in 1952, published the results on three patients. In the United States, Miller and Baker [5] and Kurland and Malach [6] also presented their studies in 1952. These initial papers served to establish the relative safety of arterenol in the treatment of shock after myocardial infarction, and subsequently a number of other studies, some of which are summarized in table 1, have appeared.

In 1953, Miller and co-workers [7] reported the successful use of arterenol in two patients in shock after pulmonary embolization. Subsequently a few additional such patients were reported.[8]

It is now almost uniformly agreed that the therapy of choice for cardiogenic shock includes the use of vasopressor agents. An important impetus to this thinking was the report on mephenteramine by Brofman and associates.[9] In our view, arterenol is the vasopressor of choice when dealing with such a grave condition as severe shock after myocardial infarction, but its use needs considerable further clinical evaluation.

The present report summarizes a one-year experience of consecutively treated patients with cardiogenic shock at the Michael Reese Hospital, Chicago. Also, data on 11 additional patients with shock after acute pulmonary embolization are presented.

From the Cardiovascular Department, Medical Research Institute, and the Department of Medicine, Michael Reese Hospital.

A study was made of the records of 55 patients who had severe shock after myocardial infarction and who were treated with either arterenol or metaraminol bitartrate. A distinct pressor effect was obtained in 42, shock was relieved in 38, and seven-day survival followed in 22. A similar study was made of 11 patients with shock after pulmonary embolism who received the same treatment. A distinct pressor effect was obtained in seven, shock was relieved in five, and seven-day survival followed in three. It is recommended that treatment with arterenol be started promptly after the recognition of shock in either type of patient. The simultaneous use of digitalis products in patients with coexistent congestive heart failure was not found harmful. To prevent local tissue injury, which caused sloughing in three cases, the bottle containing arterenol should be attached to the venoclysis apparatus only after a free flow has been established with a 5% solution of dextrose in water.

Methods and Criteria

The case histories of patients treated for shock with vasopressor drugs during a one-year period (August, 1956, to August, 1957) were collected. The records of the hospital pharmacy were used, and every patient who received arterenol or metaraminol bitartrate was noted. The hospital record was then reviewed and the data summarized.

In this period, a total of 123 patients were treated for shock with arterenol, metaraminol, or both. Fifty-five of them fulfilled our criteria for having severe shock after myocardial infarction; 11 patients fulfilled similar criteria for shock after pulmonary embolization. The results in these two groups of patients form the basis of this report.

Our criteria to define severe shock are similar to those recommended by Binder and associates [10]: (1) systolic blood pressure 80 mm. Hg or less, (2) the presence of clinical signs of peripheral circulatory collapse, and (3) failure to respond to therapy which effectively relieved pain. However, in those patients known to have had hypertension previously, a systolic blood pressure of 90 mm. Hg or less was used instead. The pulse rate was not used in defining severe shock. We included patients with heart failure and arrhythmias and did not exclude those patients who died within one hour after therapy was started; the latter were analyzed separately.

In all instances, the diagnosis of acute myocardial infarction was confirmed by electrocardiogram or autopsy. The diagnosis of acute pulmonary embolus was made on clinical grounds, with electrocardiographic support and, in some instances, confirmation by autopsy.

A satisfactory pressor response was defined as a rise to a systolic blood pressure of 100 mm. Hg or higher. The shock was considered relieved if, after a satisfactory pressor response, the clinical signs of peripheral circulatory failure disappeared whether or not arterenol was still being administered. "Survival" was considered to have occurred when the patient lived for one week after arterenol therapy was discontinued. Note was made of patients who lived for 24 hours after therapy was instituted, whether or not arterenol was still being used.

TABLE 1.—*Reports of Arterenol Therapy for Shock After Myocardial Infarction*

Year	Author	Total No. of Patients	Pressor Effect, No.	Relief of Shock, No.	Survived, No.	Died, No.
1950	Kaindl and Lindner [2]	1	1	1	1	0
1951	Liljedahl and Norlander [3]	1	1	1	1	0
1952	Birke [4]	3	3	3	2	1
1952	Miller and Baker [5]	7	4	1	1	6
1952	Kurland and Malach [6]	14	10	9	4	10
1953	Livesay and Chapman, cited by Binder and others [10]	6	5	1	1	5
1953	Miller and others [7]	9	8	5	5	4
1953	Gazes and others, cited by Binder and others [10]	7	7	7	6	1
1953	Smith and Guz, cited by Binder and others [10]	6	6	4	4	2
1953	Calenda and others, cited by Binder and others [10]	13	9	4	2	11
1953	Moyer and others, cited by Binder and others [10]	14	12	6	6	8
1954	Sampson and Zipser [11]	30	27	20	16	14
1954	Binder and others [10]	25	23	12	8	17
1957	Littler, T. R., and McKendrick, C. S.: Lancet 2:825, 1957	22	10	..	0	22
Total		158	126 (80%)	74 (46%)	57 (36%)	101 (64%)

Results

Shock After Myocardial Infarction.—The over-all mortality in the cases collected from the literature (table 1) was 64%. The over-all mortality in our present series was 60% (table 2). When the patients who received arterenol therapy for less than one hour before death are omitted, the mortality becomes 49%. This is close to that obtained by Sampson and Zipser [11] and represents a marked improvement over the known grave prognosis of cardiogenic shock not treated with vasopressor drugs.[12]

TABLE 2.—*Results of Arterenol Therapy in Fifty-five Patients with Shock After Acute Myocardial Infarction*

	No.	%
Pressor effect	42	76
Relief of shock	38	70
Survived 24 hr.	31	56
Total	22	40
Died 1 hr.	12*	22
Total	33	60
Frank congestive heart failure	13	24
Hypertension prior to shock	12	22
Auricular fibrillation	7	13
Atrioventricular dissociation	4	7

*Eleven were designated as "preterminal" on hospital chart and died within one-half hour after arterenol therapy was started.

The patients ranged in age from 44 to 91 years. Sixteen patients had a history of one previous myocardial infarction and two others of two such episodes. There was no significant difference in the results of treatment between those patients with and without a history of previous myocardial infarction. However, congestive heart failure significantly worsens the prognosis, as has been observed by others.[10] Thirteen patients had congestive heart failure; two of them survived.

The duration of shock, as expected, does influence treatment results. Three of 10 patients, in whom the shock was known to have been present for four hours or longer when treatment was started, survived. Ten of 17 patients treated when the shock was present for less than one hour survived. A history of previous hypertension did not significantly alter the results in our series.

All patients in frank congestive heart failure received one or another digitalis product. The results do not show any particular trend. In a number of instances the patients were not fully digitalized. In no case did the combination of digitalization and arterenol therapy appear harmful, an observation in keeping with our previous experience.[7]

Hydrocortisone was used in only four patients, with no demonstrable effect on the shock. Three of the 55 patients received metaraminol. No discernible effect was present in two patients; in the other, the blood pressure was adequately maintained subsequent to the relief of shock with arterenol.

In general, our experience in this series confirms previous observations [10] that the amount of arterenol administered per unit of time is of prognostic

significance. However, two patients with satisfactory pressor responses to a modest dosage of arterenol subsequently were found to have massive myocardial infarction at autopsy.

Three of four patients with advanced atrioventricular block died. Five of the seven patients with auricular fibrillation died. All of the patients with auricular fibrillation received a digitalis product.

Shock After Acute Pulmonary Embolization.—The results of arterenol therapy for shock after acute pulmonary embolization are given in table 3. Five of the 11 patients were treated postoperatively. Five patients died less than one hour after the institution of arterenol treatment.

Complications.—Three of the 66 patients treated had superficial skin sloughs after infiltration by the arterenol solution. No skin grafting was necessary.

Comment

This retrospective study confirms the general opinion previously expressed in the literature, namely, that vasopressor therapy significantly improves the prognosis when shock complicates acute myocardial infarction. Manifest congestive heart failure plus shock remains a grave prognostic combination, and, when present, the results with arterenol are poor. A number of patients in our series were inadequately digitalized. Inasmuch as there appears to be no problem in using arterenol and digitalis products simultaneously, we strongly urge that digitalization should be adequate whenever congestive heart failure, even when slight in degree, is manifest. Indeed, the prognosis is in such cases so poor that rapid intravenous digitalization is probably advisable. Griffith and co-workers [12a] were unable to demonstrate a potentiating effect of hydrocortisone on the vasopressor action of arterenol when treating shock. Though we have noted no response in four patients, further investigation is necessary.

Table 3.—*Results of Arterenol Therapy for Shock After Acute Pulmonary Embolization*

Year	Author	Total No. of Patients	Pressor Effect, No.	Relief of Shock, No.	Survived, No.
1953	Miller and others [7]	2	2	2	2
1954	Wolff [8a]	1	1	1	1
1955	Silsthorpe [8b]	1	1	1	1
1955	De Swiet [8c]	1	1	1	1
Present study		11*	7	5	3
Total		16	12	10	8 (50%)

* Five who died were treated less than one hour before death.

Shock after myocardial infarction should be treated as early as possible. Procrastination in instituting vasopressor therapy significantly decreases the survival rate. Indeed, serious consideration must be given to the use of vasopressors when hypotension persists after pain has been relieved. In such circumstances, the use of phenylephrine, mephentermine or metaraminol is satisfactory. When severe shock is present, the use of arterenol is preferred, since this drug's high potency is not matched by any other pressor agent. A substantial body of data indicates its high degree of safety. However, all potent vasopressor drugs should be used with caution in patients receiving vagal blocking drugs, since previous work from this department [13] has shown that arterenol administered under these circumstances may lead to supraventricular arrhythmias.

The use of arterenol has been criticized because it requires administration under constant medical supervision. However, patients in severe shock must be under constant medical surveillance irrespective of the therapy being used. In the presence of severe shock, intravenous therapy, insuring the immediate delivery of the drug, is obviously desirable.

Arterenol may cause local tissue injury, this being a reflection of its extreme potency as a vasoconstrictor agent. It is our impression that local tissue sloughs sometimes result from infiltration when the intravenous drip is being started. Accordingly, the bottle containing arterenol should be attached only after a free flow has first been established with a 5% solution of dextrose in water. Phentolamine (Regitine) hydrochloride should be injected locally whenever arterenol solutions infiltrate subcutaneously.[14]

No clear conclusions can be reached from the relatively few treated patients with shock after acute pulmonary embolization reported to date. Much further experience is needed in the use of vasopressor therapy. Certainly vasopressors merit consideration in this grave clinical condition.

Summary

A retrospective evaluation of arterenol (norepinephrine [Levophed]) therapy for shock after acute myocardial infarction and acute pulmonary embolization was based on a one-year experience at the Michael Reese Hospital, Chicago. Fifty-five patients with shock after myocardial infarction and 11 with shock after pulmonary embolization were studied. Arterenol was seen to be the therapy of choice in severe cardiogenic shock, and it significantly improves the prognosis. Manifest congestive heart failure along with shock after myocardial infarction remains a grave combination. Full digitalization, preferably by the intravenous route, should accompany arterenol treatment under these circumstances.

As with other forms of shock, the earlier treatment is begun the more effective it becomes. Hypotension persisting after the pain of acute myocardial infarction has been relieved may require treatment. Vasopressor drugs which can be administered subcutaneously or intramuscularly should be effective in most such instances. More data are needed on shock complicating pulmonary embolization before definite conclusions on the effectiveness of vasopressor therapy in this condition can be drawn.

Michael Reese Hospital, 29th Street and Ellis Avenue (16) (Dr. Miller).

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BENIGN NEOPLASMS OF THE SMALL INTESTINE

WITH A REPORT OF THREE BLEEDING BENIGN TUMORS OF THE JEJUNUM

George W. Lechner, M.D.
and
Paul J. Connolly, M.D., Detroit

Three cases are described in which patients were hospitalized for massive intestinal bleeding. In each case the results of roentgenography were either negative or misleading, and the preoperative diagnosis was a probable bleeding duodenal ulcer, although the presence of tumor was considered. One patient also showed signs of intussusception. At laparotomy in each case the lesion proved to be a benign tumor, and excellent results followed resection. These observations are in accord with existing records of more than 1,400 cases of benign tumors in the small intestine. Many are asymptomatic, and less than 8% of all patients in whom such lesions were found by the surgeon had been given diagnoses before operation.

Although benign tumors of the intestine are admittedly uncommon, they can no longer be considered rare.[1] They are being reported with increasing frequency due to newer x-ray techniques, as well as to a greater awareness of their presence. The total number of documented cases exceeds 1,400. This does not include ectopic inclusions in Meckel's diverticula, aberrant tissues such as in the pancreas and gastic mucosa, hematomas, plasma cell myelomas, endometrial carcinomas, granulomas, inflammatory polyps, or carcinoids. With the exception of carcinoids, these are not true tumors, and the latter are of very questionable benignancy.

In most series, benign tumors of the small intestine are found to be less frequent than malignant ones, averaging 30 to 45% of the total.[2] In the younger age groups, however, the benign tumors apparently outnumber the malignant ones.[3] The malignant tumors occur in a somewhat older age group, the patients averaging 47½ years, as compared with 38 years for those with benign tumors.

Since the symptomatology of the benign lesions is frequently mild and nonspecific, the diagnosis is difficult to establish. Even when laparotomy is considered necessary, the preoperative diagnosis is seldom more than suspected. In symptomatic lesions, repeated laparotomies have, on occasion, been necessary before the lesion was discovered. Many tumors are found incidentally at surgery or at autopsy.

Many of the reports on smaller series state that the majority of benign tumors are found on postmortem examination.[4] However, the most authoritative review of the subject, by River, Silverstein, and Tope,[2c] reveals that in 72% of the 1,399 cases collected from the world literature through 1954 the tumors were removed at the time of surgery.

Etiology

The ultimate cause of most neoplasms is unknown, but the etiology of those in the small intestine is perhaps open to more speculation than elsewhere. Morison [5] commented in 1941 on the "remarkable immunity" of this region to neoplasms. This is despite the fact that the small intestine makes up 75% of the alimentary tract; it is more remarkable because the small intestine is preceded and followed by the stomach and colon, respectively, wherein 40% of all malignant growths originate. Less than 0.5% of all gastrointestinal carcinomas occur in the small intestine. Benign growths, however, are relatively more common; about 25% of the total benign gastrointestinal tumors occur in the small intestine.[6]

Numerous reasons for the low incidence of new growth in this region have been postulated. The most widely accepted of these hypotheses are (1) the alkalinity of the intestinal contents, (2) the minimum of stasis and kinking in this region, and (3) the diminished trauma due to the liquid nature of the fecal stream.[7] The etiological factor in certain cases apparently is hereditary, as evidenced by anobuccal melanosis (Peutz-Jeghers), neurofibromatosis (Recklinghausen's disease) involving the intestine, and certain cases of intestinal telangiectasia due to hemangiomatosis (Rendu-Osler-Weber) syndrome. In addition, certain other cases suggest a familial tendency. In some patients requiring multiple operations, the tumors are of different types, suggesting a low resistance to neoplasms.

According to River and co-workers,[2c] the sex incidence of these tumors is approximately equal, and the majority (60%) occur in persons between the ages of 30 and 60. However, almost 15% were in patients under 20, and about 0.1% of the total occurred in patients below one year of age.

Sarcoma is relatively more common than carcinoma. In fact, the majority of gastrointestinal sarcomas actually occur in the small intestine.[8] This suggests, perhaps, that sarcoma occurs somewhat as a happenstance, related more to the total length of the intestine exposed than to any specific etiological factor. This may also be true, to a lesser extent, of the benign tumors.

Pathology

Seventy-five per cent of the benign tumors of the small intestine, in their relative order of frequency, are adenomas, lipomas, myomas, polyps, fibromas, angiomas, or hemangiomas. It is noted that about two-thirds of the total originate from connective tissue.[2c]

The relative percentages of malignancy, as well as the incidence of all tumors, increase from the duodenum and jejunum to the ileum, being about 18, 25, and 57% respectively.[2c] These percentages are proportional to the lengths of the individual segments, although the jejunum may have somewhat less than its share.

The majority of benign tumors tend to be intraluminal, although they may be intramural or subserosal, depending on the site of origin.[4] As growth occurs in the intramural variety, they usually present as subserosal or intraluminal tumors. The majority of benign tumors are polypoid, although they may partially or completely encircle the intestine on occasion, as the malignant growths frequently do. Their polypoid nature accounts in part for the high incidence of intussusception with benign tumors, although this finding is uncommon with malignancy. The infrequency of intussusception with malignancy is also due to the greater induration and infiltration locally, preventing the intussusception from forming. The microscopic picture is frequently mixed in the case of connective-tissue tumors, particularly fibromas, although the epithelial lesions are usually more typical.[4]

Clinical Findings

As has been mentioned, many of the lesions never cause symptoms during life, or else the symptoms are so vague that the diagnosis is never established. The symptoms of duodenal and upper jejunal tumors frequently simulate disease of the stomach, duodenum, or pancreaticobiliary tract. Lesions of the ileum may suggest disease of the colon.[9]

The most common single condition leading to the diagnosis of benign tumors is intestinal obstruction. This is the presenting symptom in two-thirds of all cases, three-fourths of these being due to intussusception.[10] It is manifested by the usual symptomatology, with colicky pain, distention, constipation, and vomiting; if the obstruction is due to intussusception, there is frequently a palpable sausage-shaped mass and perhaps bloody mucus per rectum. This latter finding accounts for the fact that many of the cases were overlooked in earlier reviews, being lost in the voluminous literature on intussusception. In adults, the majority of all cases of intussusception are due to benign tumors of the small intestine, and such tumors should be intensively searched for whenever this type of obstruction is found at operation.[2c]

Frequently the tumor is not obvious at the time of operation, and often the intussusception has spontaneously reduced, leaving only a little dilated and edematous intestine to suggest the need for closer examination. These circumstances account for the frequent history of prior attacks, each typical of temporary mild obstruction. Numerous cases have been reported in which several explorations were required before the neoplasm was finally discovered.

Tumors of the ileum are more likely to cause intussusception than those of the duodenum, where intussusception rarely occurs. This is probably due to the semifixed nature of the duodenum and to the more solid consistency of the lower intestinal contents.[2c]

The next most common symptom is intestinal bleeding, usually manifested by anemia and/or melena. About one-third of the reported cases have presented in this way, with massive bleeding occurring in about 11%. Intussusception was a concomitant finding in half of the bleeding patients. Almost all of these patients had had numerous hospital admissions and diagnostic studies, without proper diagnosis. Massive bleeding carried with it an average mortality of 14%;[10] patients at times underwent several operations before removal of the lesion. Each of the patients here reported presented with moderate to severe upper intestinal hemorrhage; all had a history of prior episodes. One, in addition, had associated intussusception. Numerous other symptoms may occur on occasion, such as postprandial fulness, persistent or periodic epigastric pain, anorexia, and weight loss. None of these, however, is sufficiently specific to give much help in diagnosis.

Definitive diagnosis is difficult and, except in one or two series, has seldom been made preoperatively. In the most authoritative report, covering almost all the reported cases, the correct preoperative diagnosis was made in only 79 (7.8%) of the 1,014 instances in which a tumor was found at operation.[2c] The diagnosis was only suspected in the three cases reported below.

An increase in correct preoperative diagnosis has parelleled the improvement in roentgenologic techniques, and x-ray remains almost the only helpful aid in the diagnosis of benign tumors. The usual upper and lower gastrointestinal studies are rarely of much help except in excluding other diagnoses, although they may aid in revealing duodenal lesions. A negative gastrointestinal series should suggest the diagnosis in the presence of melena especially when it is massive and without hematemesis. Such a situation was present in two of our cases. In the other there was some dilation of the duodenum above an obstruction that was found later to be due to intussusception.

Detail films of the small intestine, when properly done, may be of considerable value in diagnosis[11] (although in our cases they were not), particularly when made with the aid of an inlying Miller-Abbott tube. Thin barium may be injected through the tube when the balloon is stopped by the lesion. Despite the time and effort required, these special studies should be utilized in properly selected cases. If this were done, up to 50% of these cases could be diagnosed preoperatively.[12]

Treatment

The treatment of benign tumors of the small intestine is essentially surgical and is directed at total removal by the simplest method. There should be intensive preoperative treatment of the associated anemia, electrolyte disturbances, and dehydration.

If small, tumors frequently may be removed by enterotomy and either ligation at the base of the pedicle, when feasible, or diamond-shaped submucosal excision. If the tumor is larger, a limited resection with end-to-end anastomosis is usually carried out. Rarely are benign tumors of such size or location as to require more complicated treatment.

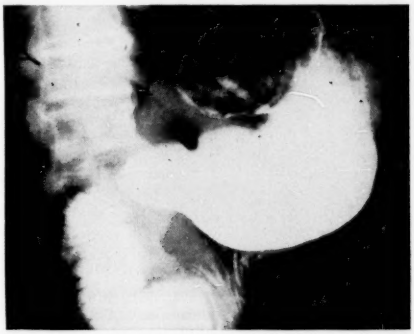

Fig. 1.—Dilated stomach and duodenum with little barium in fourth part of duodenum and none beyond duodenum.

Despite the desirability of preoperative antibiotic preparation of the intestines, most excisions have been carried out without this, with relatively good results. Tabulated results in 960 cases in one series, where statistics were available, gave an over-all operative and postoperative mortality of 20.6%. There has been a steady decline in mortality over the past 20 years.[2c]

Presented below are reports on three benign jejunal tumors encountered in the practice of one of us (P. J. C.), two of them within the past year.

Report of Cases

Case 1.—A 57-year-old man was admitted on Jan. 13, 1953, with the chief complaints of epigastric pain and tarry stools, both present for about three weeks. The pain in the epigastrium was described as gnawing in nature, occurring usually when the patient was hungry and at times nocturnally. It radiated around both costal margins to the back. It

was relieved by food and milk of magnesia. Simultaneously he had developed melena, which persisted in all stools. Four days prior to admission he was seen in the hospital emergency room and given medication because the pain had kept him awake. He complained of weakness during the previous week but denied syncope. There was no known weight loss, no hematemesis or other vomiting, and no diarrhea or hemato-

Fig. 2.—Almost complete obstruction at duodenal-jejunal junction with only trickle of barium in upper jejunum.

chezia. He denied pyrosis and meteorism, and the gastroenterological inventory was otherwise negative, as was the remainder of the history.

Three to four years earlier he had had similar pains associated with melena and was seen in another hospital, where a gastrointestinal series was reported negative. He was given a transfusion and placed on a diet for ulcers, but he discontinued this when the symptoms abated.

The patient was well developed and well nourished. He had a blood pressure of 140/80 mm. Hg, a pulse rate of 92 per minute, full and regular, and a respiratory rate of 20 per minute. The skin showed marked pallor but was dry and warm. Examination was otherwise entirely negative. The diagnosis on admission was bleeding duodenal ulcer.

Laboratory studies disclosed a hemoglobin level of 6.6 Gm. per 100 cc., a red blood cell count of 2,810,000 per cubic millimeter, and a color index of 0.77. There was marked anisocytosis and moderate hypochromia. The white blood cell count was 8,300 per cubic millimeter, with a normal differential; urinalysis was negative. Blood chemistry studies gave essentially normal results. Two days later the hemoglobin level had risen to 10.2 Gm. per 100 cc. after transfusions. There were 6.8% reticulocytes, and the platelet count was 725,000 per cubic millimeter. X-rays taken on this day revealed a complete obstruction of the third and fourth portions of the duodenum, with 100% gastric and duodenal retention at three hours (fig. 1 and 2). Studies with the barium enema gave negative results. After the upper gastrointestinal series had been completed, complete obstruction occurred. Levin tube suction was begun, and he was given fluids and blood, receiving a total of six units preoperatively, which maintained the hemoglobin level slightly below normal.

The patient was operated on eight days after admission, with the preoperative diagnosis of probable malignant duodenal tumor. Surgery revealed an intussusception about 14 in. in length, extending up to the ligament of Treitz. This was reduced by traction and pulsion. A dimpling of the wall of the jejunum was noted about 12 in. distal to the ligament, and a polyp was palpable, with a large lymph node nearby. Results of frozen section of the node were not satisfactory, so a wedge resection, including the mesenteric nodes, was done, followed by open end-to-end anastomosis. The polypoid tumor (fig. 3) proved to be a lipoma, with mucosal ulceration over the tumor. The postoperative course was uneventful, and the patient was discharged after eight days.

Case 2.—A 42-year-old woman was admitted to the hospital on Jan. 6, 1957, with the chief complaint of anemia. She had been well until one year prior to admission, when she had had a series of tarry stools without abdominal pain, hematemesis, or other gastrointestinal symptoms. She was admitted to a hospital in another city, where x-rays and sigmoidoscopic examination were reported negative. She received three units of blood and was placed on a diet for ulcers, plus iron medicaments, and was discharged.

Six months prior to the present admission she had again had a series of tarry stools associated with weakness and easy fatigability. This lasted three weeks and was associated with occasional vague abdominal discomfort unrelated to food. She was very pale on admission and her hemoglobin

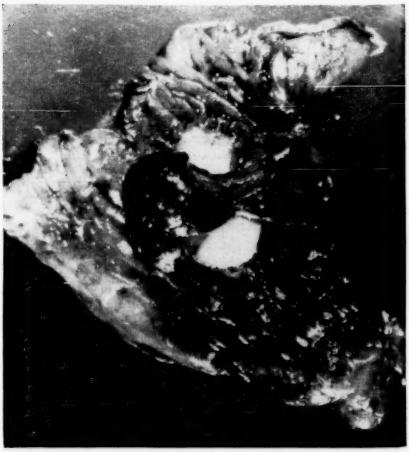

Fig. 3.—Polypoid lipoma of jejunum which caused intussusception. White material in back of stalk of tumor is cotton for photographic contrast.

level was 3.2 Gm. per 100 cc., with a red blood cell count of 1,700,000 per cubic millimeter. She had 4+ occult blood in the stool, and the other laboratory studies showed normal results. She was given transfusion until her hemoglobin level reached 11.9 Gm. per 100 cc.; seven units of blood was required. A complete gastrointestinal series, including detail

studies of the small intestine, was negative. The string test was positive for blood in a localized area, 56.25 cm. from the incisors, the pylorus being estimated at 54 cm. Gastroscopic examination was refused, and she was discharged on an ulcer diet after the bleeding had apparently stopped.

The most recent admission was because a periodic examination had revealed that the hemoglobin level was again down, this time to 8.0 Gm. per 100 cc. It had been normal on previous examinations, and the patient had no melena or other symptoms, except for a loss of 20 lb. (9.1 kg.) during the previous year. She had remained on her diet. Her medical and social history, as well as the systemic review, were negative, except for a history of hypertension five to six years earlier.

The patient was obese, and her skin was quite pale. The blood pressure was 130/75 mm. Hg, and the white blood cell count and urinalysis were normal, as were the prothrombin time and platelet count. The stool contained 4+ occult blood. X-rays were again normal. The string test revealed blood staining from what was thought to be the cardia to the pylorus. Administration of six units of blood was required over a two-week period to maintain the hemoglobin at near normal levels. A diagnosis of probable duodenal ulcer was made, and operation was scheduled for Jan. 22, 1957. A polypoid tumor (fig. 4, 5, and 6) of the jejunum was removed by simple wedge resection from the antimesenteric border. The patient's course was satisfactory, and she was discharged on the seventh postoperative day. The pathological diagnosis was "fibroma with ulceration."

CASE 3.—A 53-year-old woman was admitted on Nov. 20, 1957, with the chief complaint of black stools for the previous three days. She gave a history of recurrent episodes of melena over a 24-year period; these attacks had occurred

Fig. 4.—Fibroma of jejunum. Segment was removed at operation.

every few months and had lasted an average of one to three days. She had been anemic for years, the hemoglobin level being 8.9 Gm. per 100 cc. on one known occasion. The most recent attack had consisted of frequent melanotic stools, occurring several times daily. Several of them also contained bright red blood. She had been dizzy and weak during the previous 24 hours and had had an episode of syncope the evening of admission. Several of the prior bleeding episodes had been massive, requiring transfusions. The patient denied ever having had any abdominal pain, pyrosis, meteorism, or hematemesis. She had previously had numerous gastrointestinal x-rays, and all except one were normal. This one, taken several years before, apparently had revealed a duodenal

Fig. 5.—Jejunum opened showing ulceration of fibroma with drop of blood coming from ulceration.

ulcer. The patient said she had been easily bruised for years, but a complete hematological study two months prior to admission was entirely normal.

During an examination for a bleeding episode one and one-half years prior to this admission, a completely asymptomatic adenocarcinoma of the right kidney had been discovered on pyelography. This was removed uneventfully, with no subsequent symptoms. The history and systemic review were otherwise noncontributory.

The patient was well developed and well nourished, but she appeared quite pale. Her blood pressure was 112/68 mm. Hg, pulse 116 per minute, and respiratory rate 20 per minute. Minimal epigastric tenderness was noted by one examiner, as well as a positive tourniquet test when blood was drawn for typing. The physical examination was otherwise negative. The tentative diagnosis was bleeding peptic ulcer, with blood dyscrasia and metastatic adenocarcinoma to be ruled out.

The hemoglobin level was 6.8 Gm. per 100 cc. on admission, and the white blood cell count was 12,500 per cubic millimeter, with a normal differential. The microhematocrit reading was 25%, urinalysis was negative, and stool examination was repeatedly positive for occult blood. The upper gastrointestinal x-ray series, chest x-ray, and bone survey were negative. Seven transfusions over an eight-day period maintained the hemoglobin level at only 6 to 8 Gm. per 100 cc., finally bringing it up to 12 Gm. prior to operation. This was despite intensive ulcer therapy.

Operation was carried out on Dec. 4, 1957, and revealed a polypoid lesion in the jejunum, 11 in. from the ligament of Treitz. This was removed by wedge resection with end-to-end

anastomosis. There was no evidence of tumor in the left renal area. The pathological report was leiomyoma of the jejunum. The postoperative course was entirely satisfactory, the patient being discharged after eight days.

Summary and Conclusions

Benign tumors of the small intestine can no longer be considered rare, since the total reported cases exceed 1,400. They are being reported with more frequency, particularly as newer x-ray techniques for studies of the small intestine have been developed.

Although many cases are asymptomatic and are found incidentally at operation or at autopsy, of all the documented cases, 70% were found at operation and a considerable percentage of these were

Fig. 6.—Tumor sectioned to show fibrous character.

symptomatic. Less than 8% of all patients operated on have been given diagnoses before surgery. This figure could be raised to nearly 50% by proper x-ray examination, and a few series have approached this figure.

Most series show benign tumors to be less frequent than malignant, and they are also less apt to be symptomatic. The etiology is essentially unknown. The sex incidence is equal, and the majority of these tumors occur in patients between 30 and 60 years of age. One-half of all cases occur in the ileum, the duodenum being the rarest location.

Most benign tumors are polypoid, and the most common presenting symptom is obstruction. The majority of these obstructions are due to intussusception. In fact, the majority of cases of intussusception in adults are due to benign tumors of the small intestine. The second most common symptom is bleeding. Diagnosis in the case of massive bleeding is usually late, and the mortality is fairly high. Tumor of the small intestine should be considered in patients with upper gastrointestinal bleeding without hematemesis in whom the upper gastrointestinal x-rays are negative.

Treatment is surgical and is directed at the simplest method of removal, usually either enterotomy with simple excision or resection with end-to-end anastomosis. The results have been relatively good, although the over-all mortality is about 20%; there has been a marked decline in recent years.

In the three cases of benign jejunal tumors reported here, all patients were admitted with massive upper intestinal bleeding. One of them also had obstruction due to intussusception. Preoperative diagnosis in all cases was probable bleeding duodenal ulcer, although the presence of tumor was considered. Upper gastrointestinal x-rays in all cases were either negative or misleading, including a series of the small intestine in one instance. Excellent results followed resection in all our cases.

16778 Westmoreland Rd. (19) (Dr. Connolly).

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AGED INFIRM RESIDENTS IN A CUSTODIAL INSTITUTION

TWO-YEAR MEDICAL AND SOCIAL STUDY

Eugene Moskowitz, M.D., Mount Vernon, N. Y., Edith R. Fuhn, B.S., Valhalla, N. Y., Margaret E. Peters, M.P.H.
and
Allan S. Kearley, M.B., New York

The feasibility of a method of disability evaluation in aged infirm people was tested in a group of 115 residents of a custodial institution. They were observed over a period of two years, at the end of which time about half of those remaining in the institution were over 75 years of age. A continuous process of rehabilitation was shown to be necessary in these patients. It involves restoration, reactivation, and maintenance and is especially important in those who have been admitted from a hospital or are temporarily hospitalized during their residency. There is a tendency for them to continue at the low level at which they were functioning when discharged from the hospital. This is a major problem in a domiciliary institution. Its solution requires the cooperation of the family and the community. Periodic disability evaluation and assessment of the patient's resources are essential. During the period of the study seven residents were discharged from the county home to their community.

A selected group of 115 aged, infirm individuals were thoroughly screened in order to serve as the basis for a determination of the feasibility of a method of disability evaluation. This system was subsequently called the "Physical Profile (PULSES)" and has been described previously.[1] The objective was to develop a method for expressing the ability of an aged, infirm individual to perform routine physical activities within the limitations imposed by various physical disorders.

This study deals with a two-year review of the same group of patients, with use of similar medical and social techniques to evaluate their problems. All the individuals were residents of a county home, living under similar conditions, with careful control of their medical problems by the same personnel throughout the entire two-year period of observation. In addition, an adjacent county hospital was available for all acute surgical and medical care, and complete diagnostic and laboratory facilities were available. Complete records were kept on all patients, and the hospital charts were thoroughly reviewed. Reexaminations were carried out at periodic intervals, averaging not more than three months, and a new physical profile was assigned each patient to indicate his functional capabilities. The residents received comprehensive medical care, including physical rehabilitation services provided by the county hospital. Social service was provided by the staff of the home on an on-going basis.

During the two-year period there were 36 deaths, constituting 31% of the entire group. It is rather significant to note that there was only one postoperative death. Pulmonary complications accounted for one-third of the deaths; these included five cases of pulmonary emboli, none of which were postoperative. The major cause of death was cardiac in 10 patients (coronary occlusion in 8 and congestive heart failure in 2), pulmonary in 12 (bronchopneumonia 6, pulmonary embolus 5, and pulmonary hemorrhage 1), cerebral in 4 (cerebrovascular accident 3 and parietal meningioma 1), urinary tract infections in 5, gastrointestinal in 2 (intestinal obstruction 1 and perforated duodenal ulcer 1), and miscellaneous in 3. All but one of the patients died in the hospital; the terminal illness was less than 10 days in 66% of the cases.

Of the 79 individuals surviving the two-year period, 25, or 32%, required varying periods of hospitalization, with a total of 38 admissions. The medical causes for hospitalization included pulmonary infection 7, urinary tract infection 5, control of diabetes 4, and cerebrovascular accident 2. The surgical causes included trophic and stasis ulcer 6, amputation of the lower extremity 3, cataract 3, disease of the urinary tract 3, hip fracture 1, carcinoma of the esophagus 1, and miscellaneous 3. There was only one hip fracture in the entire group. Peripheral vascular disorders involving the lower extremities were a frequent cause for hospitalization. One patient with an inoperable carcinoma of the esophagus was the only patient hospitalized for a malignancy. The relatively low

From the departments of physical medicine and rehabilitation, Grasslands Hospital, Valhalla, N. Y., New York University–Bellevue Medical Center, New York, and Westchester County Home and Westchester County Department of Public Welfare, White Plains, N. Y. Dr. Kearley is now in Sydney, Australia.

incidence of urinary tract surgery is explained by the fact that several male residents had a prostatic resection prior to their admission to the home.

The Resident

At the end of the two-year period, 71.4% of the residents were at a level of complete independence, either in a wheel chair or on an ambulatory basis. In addition, four individuals were transferred to noninfirmary sections of the home where they did not require any supervision in their care. Seven were discharged from the county home to the community, and five were subsequently revisited in their own homes. In each instance, it was obvious that the individual had improved in the home situation, and there were no requests for readmission to the county home. This substantiates observations previously made in another study,[2] where it was established that once the pattern of rehabilitation had been set it continued within the home, guided by the proper motivation of interested relatives. Undoubtedly, this could be accomplished in more instances if community attitudes were changed.

Marital Status of Residents in a Custodial Institution

	Male	Female	Total
Single	30	12	42
Widowed	25	29	54
Separated	5	4	9
Divorced	4	..	4
Married	4	2	6
Total	68	47	115

Despite all efforts, nine residents underwent progressive physical deterioration ultimately necessitating complete nursing care. These patients constitute what may be termed the hard-core nursing problem in any domiciliary institution for the aging. Four individuals were transferred to psychiatric institutions when their mental problems could not be controlled in the domiciliary setting. However, there were many other marginal patients who were able to make the necessary adjustment to the sheltered setting in the county home. Some of these residents had previously been certified for transfer to psychiatric facilities.

Of the 115 residents in this survey, 56 (49%) were admitted from hospitals and nursing homes; 33 of these came directly from the adjacent county hospital, 16 from voluntary hospitals, and 7 from nursing homes. Fifty-nine residents (51%) came directly from the community; 16 were from a room and board facility, 27 from their own home or apartment, and 10 from a home with relatives; 6 were transient males.

The marital status of this group is illustrated in the table. Ninety-four per cent of the group had been living in a single status. Seventy-four persons were self-sufficient financially, through personal savings, odd jobs, and various types of pensions and other remuneration such as social security. Public assistance was rendered to 41, or 36%, as their sole method of community maintenance. A study of the occupational histories revealed that the majority of these individuals came from the unskilled, nontechnical categories. There were no professional people in this group. However, there were five white collar workers.

The age distribution of those individuals still remaining in the county home at the end of the two-year period is as follows: age 45 to 49, 1 person; age 50 to 54, 3; age 55 to 59, 6; age 60 to 64, 5; age 65 to 69, 13; age 70 to 74, 3; age 75 to 79, 7; age 80 to 84, 13; age 85 to 89, 6; age 90 to 94, 4; and age 95 to 99, 2. Almost 51% are over 75 years of age.

During the two-year period of observation, there were transitions in the physical profile of many residents. They reflected changes in their physical status without necessarily any alteration in their medical diagnoses. Some individuals improved, others became worse, and many maintained their physical and mental status. In addition, others underwent deterioration after acute illness and subsequently required assistance in returning to their previous functional level. This was termed reactivation in contrast to physical restoration. The latter term was applied to the rehabilitation of those residents who had incurred disabilities primarily involving the neuromuscular or musculoskeletal systems, such as a stroke or a fractured hip. However, it should be noted that the rehabilitation process was, of necessity, an on-going program, for it was equally important to maintain many of these patients at the maximum functional level which had been achieved, either in their reactivation or in their physical restoration program. This previously described program [2] has been termed a maintenance type of physical rehabilitation; it has been described also by Costello and Tanaka.[3] At the end of the two-year period of observation, 54% of the remaining patients were considered to be on such a maintenance program.

Comparison of the various components of the physical profile again substantiates the original findings, namely, a preponderance of disabilities involving the lower extremities which underwent the greatest deterioration. This is illustrated in the figure. In contrast, the upper extremities showed very little change during this same period. As anticipated, the incidence of incontinence increased, but there were only four totally incontinent patients at the end of the two-year period among those who had survived.

Rehabilitation Program

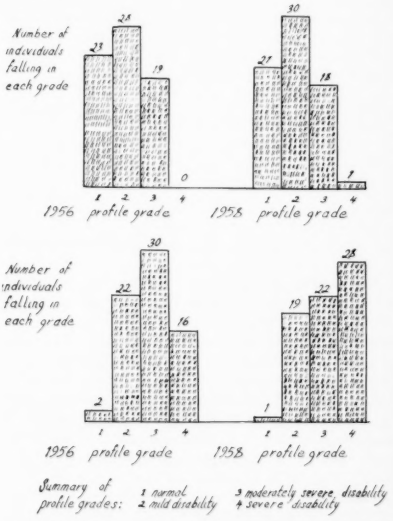
The introduction of a physical rehabilitation program in a county home more than three years ago has gradually crystallized a new concept in custodial care. The aging resident frequently be-

comes chronically ill and infirm. Rather than requiring pure domiciliary care on an ambulatory basis, these people need adequate medical and social services to meet their daily on-going needs as they arise. There is an increasing tendency to consider these domiciliary institutions as points of no return, not only from the medical but from the sociological perspective as well. While these individuals are, of necessity, housed in an institution devoted to the care of this type of patient, it does not necessarily follow that they should not be exposed to the same general medical and rehabilitation concepts which are carried out in the community. A bedridden individual in a domiciliary institution constitutes the major problem in nursing care. It is therefore necessary to be on the alert for comparatively minor defects which could ultimately lead to increasing this problem.

Originally, the physical profile was developed as a guide for those concerned with the care of the domiciliary patient. It enables them to estimate roughly the physical and mental abilities of any person. Periodic reevaluation enables one to determine exactly what is happening to the person. The physical rehabilitation program is geared to the specific needs of the individual at any one particular time. It has been recognized that the patient may undergo physical and mental deterioration without any changes from the diagnostic point of view. Teaching an individual to walk to the bathroom can influence his dietary habits as well as his mental attitude and behavior in the area where he is domiciled. Most elderly people have a tendency to take to a chair or to other sedentary activities, and an organized program of activity is vital for maintaining their physical capabilities. Contractures in the lower extremities, particularly the hips and knees, are very prone to develop from protracted sitting. A mild contracture may make the difference between an ambulatory and wheel chair existence. Periodic reevaluation of these individuals, with an estimate of their capabilities as reflected in the physical profile, immediately calls attention to these changes and initiates the proper corrective measures.

As previously noted, many individuals were hospitalized for intercurrent infections or other medical and surgical complications, and it was necessary to reactivate them after these illnesses. This is one of the major problems in a domiciliary institution. There is a tendency for them to continue at the level at which they were functioning at the time of discharge from the hospital. This is particularly true of individuals who are transferred from voluntary hospitals where the facilities are limited for any type of activation program. They are transferred soon after the termination of the acute phase of the illness, but this does not imply maximum physical restoration.

From the social point of view, it is equally important to change the concept of the domiciliary institution. It has been extremely difficult to work with relatives in making adequate plans for possible discharge of those who have improved during the course of their institutional care. In those instances where there is any hope of further rehabilitation, it is necessary to maintain an on-going casework service in order to make the family understand that there exists the possibility of improvement in the resident in a custodial institution, with the ultimate goal of return to the community.



Comparison of upper (*above*) and lower (*below*) extremity profile gradings in 70 patients in 1956 and 1958.

However, it should be recognized that in any domiciliary institution there are a given number of patients who require complete, permanent nursing care. By making more individuals self-sufficient, it should not be assumed that one can reduce the cost of domiciliary care. It does enable a greater allocation of manpower to those persons who require complete care. This recognizes the fact that no domiciliary institution can easily recruit and maintain a complete staff at all times.

Summary and Conclusions

In a two-year study of 115 aged, infirm individuals, a system of disability classification, termed the "Physical Profile," served as an effective index

for recording the physical and mental status of the patients. The rehabilitation of a domiciliary patient is a continuous process involving restoration, reactivation, and maintenance, with transitions from one phase to another to meet the changing needs of the individual. Various disabilities affecting the lower extremities constituted the major factor in loss of rehabilitation potential. The terminal illness, averaging less than 10 days in 66% of the deaths, was the major cause for hospitalization in this domiciliary group. The changing population of domiciliary institutions requires a careful screening and follow-up program for recognition of the convalescent or deteriorating aged, infirm individual who can benefit from an organized activity program.

220 N. Columbus Ave., Mount Vernon, N. Y. (Dr. Moskowitz).

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CHRONIC GASTRITIS

HISTOLOGICAL CRITERIA FOR MANAGEMENT AND MEDICAL TREATMENT WITH A MUCOSAL ANESTHETIC IN ALUMINUM HYDROXIDE

Emmanuel Deutsch, M.D.
and
Howard J. Christian, M.D., Boston

Gastroscopy with multiple biopsies shows that in severe chronic gastritis the mucosal pattern is distorted by irregular distribution of the gastric glands, increased numbers of mucus-secreting cells, and inflammatory infiltration of the stroma. The pattern of symptoms (pain-food-pain cycle) and failure to respond to antacids also distinguish chronic gastritis from the typical peptic ulcer. Ninety-two patients with chronic gastritis were treated with bed rest, sedatives, gastric suction, meals planned not to exceed the patient's critical volume, and a combination of aluminum hydroxide gel with oxethazaine hydrochloride, a topical anesthetic. While the severe forms of chronic gastritis were refractory to this treatment, the moderate and mild forms proved amenable, and the combination of antacid and anesthetic afforded relief from pain for periods up to six hours after each dose. Medication was continued for six days to 18 months without evidence of significant side-effects.

In planning an adequate program for treatment of chronic gastritis, a satisfactory method is urgently needed with which to obtain objective evidence for correlation with the clinical symptoms of gastric inflammation. The use of gastroscopy [1] and multiple biopsies has enabled formation of a definitive plan for management of the problem. Criteria for evaluation of the histological picture are suggested in table 1. This is especially useful in the large number of dyspeptic patients for whom the roentgenogram is negative.

Traditional treatment of chronic gastritis has paralleled that of peptic ulcer, but the pain pattern is usually quite different. In ulcer the characteristic sequence is pain-food-relief; in gastritis, pain-food-pain. Upper abdominal distress and bloating after meals are the commonest complaints. Nausea and vomiting become more prominent as illness is prolonged. Weight loss may reach 40 to 80 lb. (18.1 to 36.3 kg.) in the severe form. Achlorhydria is noted in 10 to 15% of cases. The standard ulcer regimen —diet, antacids, and anticholinergics—usually fails to relieve symptoms of gastritis.

Classification of Gastric Histology

Normal.—Normal human gastric mucosa presents a compact and regular glandular pattern. The glands contain one to three parietal cells and the remainder are chief cells in a symmetrical placement around the circumference. Mucus-secreting cells are generally insignificant. The stroma is

From the departments of medicine and pathology, Carney Hospital and Tufts University Medical School.

Based on a paper read before the 11th Clinical Meeting of the American Medical Association, Dec. 6, 1957, Philadelphia.

sparse because of the compact glandular structure. The muscularis mucosae is thin and uniform without evidence of scarring or inflammatory infiltrate. The vessels throughout the sections are generally inconspicuous (see figure, *A*).

TABLE 1.—*Criteria for Histological Evaluation of the Gastric Biopsy*

- General architecture
  - Mucosa normal or showing inflammatory lesions (gastritis)
  - Tumor
- Epithelium and glands
  - Normal
  - Abnormal
    - Individual cell character and inflammatory change
    - Absence of acid cells
    - Intestinalization—excessive production of mucus
    - Cystic change in glands
    - Evidence of injury and repair
    - Mitotic activity, tendency toward reversal of nucleus-cytoplasm ratio
- Stroma
  - Interstitial infiltrate
    - Extent—cells per high-power field
    - Character of infiltrating cells
    - Lymphoid aggregates with and without germinal centers
- Muscularis mucosae
  - Normal
  - Abnormal
    - Cellular infiltrate
    - Edema
    - Hypertrophy
    - Evidence of injury and repair—scarring, glandular elements
- Congestion of vessels

Mild.—In mild chronic gastritis the glandular pattern is not significantly altered. Small numbers of inflammatory cells (lymphocytes and plasma cells) are haphazardly distributed throughout the interstitial tissue, with occasional slight displacement of the glands. The muscularis mucosae generally is uninvolved by this process (see figure, *B*).

Moderate.—In moderate chronic gastritis the mucosal pattern is moderately distorted with irregular distribution of the individual glands. Early intestinalization of the surface epithelium is present. The interstitial infiltrate is increased and more uniform in distribution, with formation of discrete lymphoid follicles. Some disruption of the muscularis mucosae is seen secondary to extension of the inflammatory process from the mucosa (see figure, *C*).

Severe.—In severe chronic gastritis there is considerable distortion of the mucosal pattern owing to compression and asymmetrical distribution of the glands. Increased numbers of mucus-secreting cells indicate a definite conversion to colonic-type epithelium. The stroma contains a heavy inflammatory infiltrate with many lymphoid follicles, some with active germinal centers. Fragmentation of the muscularis mucosae is seen secondary to inflammation and fibrosis (see figure, *D*).

Present evidence [2] suggests that mesenchymal cells may be unicellular endocrines which produce histamine, heparin, hyaluronic acid, and serotonin. In time of stress these may react as part of the mesenchymal system. This system includes fibroblasts, mast cells, and basophils. The chronic inflammatory infiltrate which seems to be a prominent part of the picture in gastritis may also participate in the functioning of the mesenchymal system.

The mechanism underlying the frequently described feeling of fulness and bloating may possibly involve the presence of gastric stretch receptors in the muscularis mucosae and their vagal afferent fibers, as suggested by the experiments of Paintal [3] in cats and of Towbin [4] in dogs. Towbin's experiments suggested that the reflex pathway lies in the vagus. The reflex arc consists of the gastric stretch receptor, vagal fibers, and the midbrain.

It is conceivable that in the presence of chronic inflammation of the stomach, such gastric receptors will respond to a smaller than normal volume of fluids and food, with immediate satiation of thirst and hunger. On increase of the water or food intake above this level (critical volume), gastric distress develops.

Inhibition of Histamine-Stimulated Gastric Acid

Many investigators have studied the role of the gastric antrum in controlling gastric secretion.[5] It is believed that in dogs in which the Heidenhain pouch has been established, the antrum, if exposed to or distended by food with a pH of 3.0 or above, releases gastrin to stimulate secretion in the pouch. In the presence of greater acidity, no secretion is stimulated. In the fasting state, the Heidenhain pouch yields no free gastric acid.[6]

TABLE 2.—*Diagnosis in Ninety-two Patients Examined and Treated for Inflammatory Gastric Lesions*

Diagnosis	No. of Patients
Chronic gastritis without associated disease	18
Chronic gastritis associated with	
Gastric atrophy—pernicious anemia	1
Postoperative gastritis	1
Mucosal gastric ulcer	8
Deep chronic gastric ulcer	1
Duodenal ulcer	12
Hodgkin's disease (after definitive surgery)	1
Hodgkin's disease (before definitive surgery)	1
Colon irritability	18
Chronic ulcerative colitis	7
Cancer of colon	1
Portal cirrhosis	2
Hiatal hernia	3
Migraine	4
Chronic relapsing pancreatitis	5
Postoperative cholecystectomy syndrome	1
Chronic cholecystitis	1
Narcotic addiction	1
Glomerulonephritis	1
Myocardial infarction, congestive heart failure, arteriosclerotic heart disease	3
Hypertension	1
Severe deforming arthritis	1
	92

In other experimental studies, application of a topical anesthetic to gastric mucosa blocked histamine-stimulated secretion of gastric acid [7] and prevented contraction of guinea pig ileum.[8]

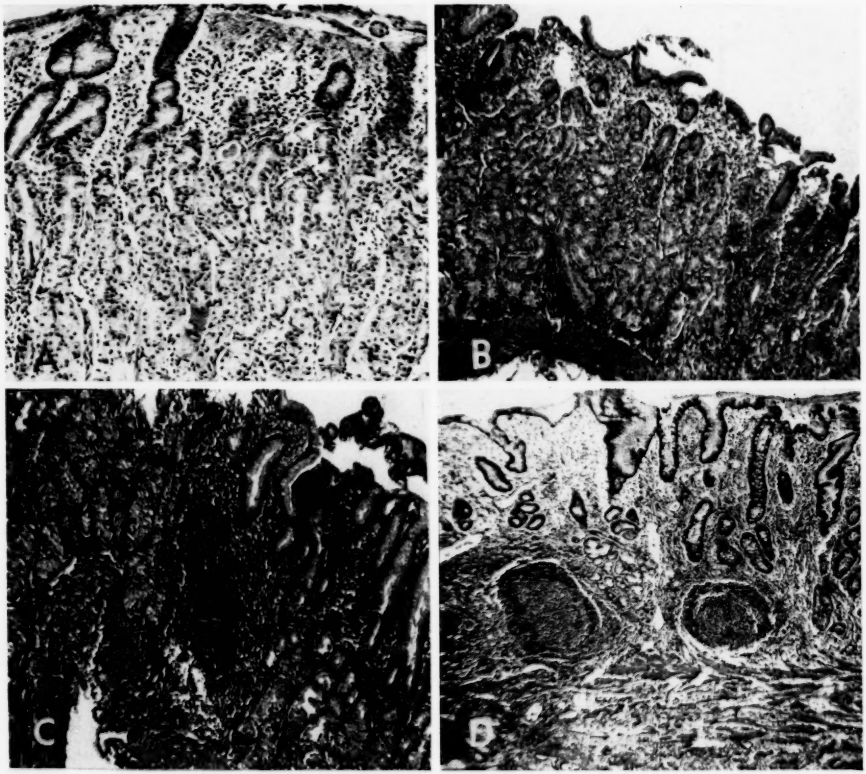
Clinical Investigation.—A series of 92 patients, 13 to 81 years old, who had chronic gastritis, were examined and treated throughout a two-year study

(table 2). Clinical evaluation included repeated history-taking, physical examinations, laboratory studies, and gastrointestinal roentgenograms. To determine whether the lesions were diffuse or patchy, gastric biopsies were routinely taken from three sites—antrum, midstomach, and fundus—in 39 cases, during gastroscopy with the Benedict gastroscope. The material was fixed in 10% formalin, stained with hematoxylin and eosin, and examined by several pathologists in various hospitals in and around Boston. At the same time the gastric aspirate was submitted for Papanicolaou stain and cell block.

Treatment.—Bed rest is essential for all such patients, especially when exhaustion is present. For recurrent episodes of nausea and vomiting, constant gastric suction for 24 to 48 hours affords the speediest relief. After gastric suction the patient is usually pain-free and well prepared for roentgenologic examination of the gallbladder and gastrointestinal tract, laboratory studies, gastroscopy, and surgical exploration if required.

The critical volume of food should be evaluated for each individual and should not be exceeded. Fast days, with bed rest, once or twice a week, help to prevent or diminish the severity of recurrent episodes of pain. Sedatives promote sleep.

Medication.—In the majority of the series, doses of 1 tablespoonful of aluminum hydroxide gel three times daily previously had afforded some relief for periods of about two weeks. Since clinical trials of a 0.2% concentration of a compound with local



Chronic gastritis. *A*, normal gastric mucosa from midstomach proximal to antrum. *B*, mild gastritis: sparse inflammatory infiltrate into interstitial tissue without significant alteration of glands. *C*, moderate gastritis: some disruption of glandular pattern and formation of lymphoid follicle. *D*, severe gastritis: extensive inflammatory infiltrate with lymphoid follicles containing active germinal follicles, intestinalization of glands, and fragmentation of muscularis mucosae.

anesthetic action, oxethazaine hydrochloride [N,N-bis-(N-methyl-N-phenyl-t-butylacetamido) beta hydroxyethylamine hydrochloride] [7] in aluminum gel, had shown therapeutic efficacy and safety, this combination was used for these patients. One teaspoonful (5 cc.) of the 0.2% solution of oxethazaine hydrochloride in aluminum hydroxide gel (which provides 10 mg. of the topical anesthetic) was administered before meals three times daily. Medication was continued for 6 days to 18 months.

Results.—Ninety-six per cent of the patients obtained complete relief of substernal pain or upper abdominal distress lasting two to six hours after each dose. Four per cent had only partial relief.

The 18 patients who had chronic gastritis with irritability of the colon had not improved on bland diet, anticholinergics, and aluminum hydroxide gel alone. The oxethazaine-aluminum hydroxide preparation permitted earlier use of water, fresh fruits, and fresh vegetables, followed by rapid improvement in bowel function.

The upper abdominal pain experienced by seven patients who had moderately severe chronic ulcerative colitis associated with chronic gastritis was relieved by the medication and the irritability of the gastrocolic reflex was considerably diminished.

The intervals between recurrences were longer and the episodes were milder in severity and more easily controlled. The medication did not mask symptoms of malignant processes in the stomach or colon. No significant side-effects developed.

Comment

Subjective symptoms of an intensity disproportionate to the degree of histological change demonstrated by gastric biopsy were best managed with psychotherapeutic measures. Thus recurrent attacks were reduced and unnecessary operation avoided.

The mild and moderate stages of chronic gastritis appear clinically to be reversible. The severe stage corresponds to the refractory form which fails to show significant improvement under medical management.

The cell block, made from aspirate at the time of gastroscopy, contributed little, although frequently it did contain recognizable gastric mucosa. When ulcer is present in the stomach or duodenum, and the biopsy specimens show normal gastric mucosa or mild or moderate gastritis, the ulcer usually heals under the medical regimen described. If, however, the biopsy specimens exhibit severe chronic gastritis, associated ulcers thus far have been refractory to medical management and appear to be best treated by operation.

Summary

Without biopsy, there is no confirmation of the presence, frequency, type, or extent of gastric pathology. The gastroscopic picture is poorly correlated with the histology of the gastric biopsy. Based on the histological criteria, three well-defined stages of chronic gastritis (mild, moderate, and severe) are recognizable. The severe stage of chronic gastritis appears to be irreversible and corresponds to the clinically refractory type. Mild or moderate chronic gastritis, with or without associated peptic ulcer, usually heals under the medical regimen proposed: gastric suction, physical rest, fast days, smaller meals, and a mucosal anesthetic administered orally in aluminum hydroxide. Peptic ulcer associated with gastritis in the severe form usually does not heal under medical management and is best treated by operation.

469 Beacon St. (Dr. Deutsch).

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CLINICAL NOTES

AGENESIS OF THE BLADDER

James F. Glenn, M.D., Durham, N. C.

Complete absence, or agenesis, of the urinary bladder is an extremely rare developmental anomaly, encountered in only 1 of nearly 600,000 patients seen at Duke Hospital in the past 28 years. Less than 10 instances of agenesis of the bladder are noted in the literature, and these are primarily of academic interest, noted at autopsy.[1] Campbell reports an incidence of seven cases in nearly 20,000 autopsies, most of which showed multiple developmental anomalies.[2] Some recorded cases of agenesis actually represent hypoplasia, contracture, or extreme degrees of exstrophy. This report deals with an instance of agenesis of the urinary bladder with several interesting clinical features.

Report of a Case

A 3½-year-old American Indian girl was admitted to the pediatric service of Duke Hospital in August, 1958, for evaluation of congenital heart disease. Complete cardiologic evaluation, including cardiac catheterization, disclosed a small interventricular septal defect, and it was felt that surgery was not indicated.

At the time of this admission, members of the pediatric staff noted that the patient had continuous urinary dribbling. Urologic consultation was requested. The patient's external genitalia were grossly normal, but careful observation revealed four pin-point openings in the urethrovaginal septum from which urine could be seen issuing.

The patient was discharged and readmitted to the urology service one month later. Information obtained from the parents indicated that no attempt had been made to toilet-train the child, and the parents had noted that the child's diapers remained wet at all times. The patient had 11 siblings, all of whom were said to be without urologic difficulties. With the exception of the cardiac murmur and the continuous leakage of urine the general examination disclosed nothing remarkable. Laboratory data included a normal hemoglobin value and white blood cell count. Blood urea nitrogen level was 36 mg. per 100 cc. Intravenous urograms revealed poor concentration of mediums with bilateral hydronephrosis and hydroureter and reduplication of the upper collecting system on the left.

With the patient under anesthesia a patulous urethral opening could be sounded to 1.5 cm. The vagina was sounded to 4 cm. The four orifices in the urethrovaginal septum were probed, and two of them were found to be fistulas communicating with the other two openings. Two 4 F. ureteral catheters were introduced into the orifices and retrograde pyelograms were taken, revealing bilateral hydroureter and hydronephrosis with reduplication of the left renal pelvis and upper ureter. A 16 F. McCarthy cystoscope was passed into the vagina, which appeared to be grossly normal. A normal cervix was visualized. Cystoscopy revealed the urethra to be a blind pouch about 1.5 cm. in length. There was no evidence of a vesical neck, nor could a trigone be visualized. The mucosa was thin and hypoplastic in appearance. Foley catheters were positioned in the vagina and urethra and were then alternately filled with a radiopaque medium. A urethrogram and a vaginogram were taken. The vaginogram is shown in figure 1. The urethral pouch measured approximately 1.5 by 1.5 cm. when completely distended. Figure 2 shows the artist's concept of the urologic findings.

It was evident that some form of urinary diversion was necessary since no bladder existed and since there was stenosis of the external ureteral orifices with consequent obstruction. Abdominal exploration and ileal loop urinary diversion were performed. After anastomosis of both ureters to an isolated segment of ileum, brought out in the right lower quadrant, approximately 6 cm. of the remaining lower portions of both ureters was excised. The pelvis was carefully inspected and a bicornate uterus noted. The patient's ovarian tubes and ovaries appeared normal. No bladder could be palpated. A normal appendix and a Meckel's diverticulum were removed.

The patient's postoperative course was uneventful. The blood urea nitrogen level became elevated transiently in the postoperative period. Urograms at discharge from hospital showed some resolution of the bilateral hydronephrosis. Adequate urinary collection was achieved through the use of an ileostomy bag. No further urinary leakage through the perineum occurred.

Developmental Anatomy

The development of the genitourinary system is a complex process. The bladder proper arises from entodermal cloaca, while the trigone and ureters arise from mesoderm (mesonephric ducts). The trigone and ureters are hence of Wolffian origin, but the vagina is derived from the Müllerian duct. It has been pointed out that since the vestibule and the ureters have a common origin in the Wolffian body it is not uncommon to find anomalous ureteral openings in the vestibule.[3]

Ectopic ureteral openings are frequently encountered, often associated with supernumerary ureters.[4] Most frequently, ectopia of the ureteral orifice occurs in the urethra or near the external meatus.[1] Extreme cases of ureteral ectopia are recorded,[5] and persistent cloaca has been noted in females.[6]

The most common developmental anomaly of the bladder is exstrophy, and this fortunately occurs in only about 1 in 50,000 births.[7] Agenesis of the urinary bladder is of still less frequent occurrence. Hypoplasia, or dwarf bladder, is also an extreme rarity. Congenital absence of the vagina, on the other hand, is a more frequent anomaly.[8] In dealing with these congenital genitourinary anomalies, emphasis must be placed on a thorough knowledge of the embryology, development, and anatomy of the genitourinary tract.[9]

From the Urologic Division, Department of Surgery, Duke University Medical Center.

Comment

This case of agenesis of the urinary bladder represents a rare urologic anomaly, but it also emphasizes certain aspects of pediatric urology which are of interest to the pediatrician, the urologist, and the family physician alike. It is interesting that this child exhibited multiple congenital anomalies in addition to agenesis of the bladder: a ventricular septal defect was demonstrated and the patient was also found to have double left kidney, a bicornate uterus, and a Meckel's diverticulum. In addition, it should be noted that this child's parents were of a North Carolina American Indian community which is notorious for its high incidence of familial intermarriage.

The most important aspect of this case is the feature of urinary incontinence. It has been previously stated that ectopic ureters are a frequent occurrence, and it is well known that urinary incontinence in children is often of surgical significance.[10] Lanman stated that 50% of children dying from pyelonephritis could be shown to have urologic obstructive lesions which would have been amenable to surgical therapy. Thorough medical evaluation of urinary incontinence is therefore mandatory in all cases.

Fig. 1.—Vaginogram of patient. Tip of second catheter remaining in urethra is seen.

The first step in evaluation of urinary incontinence is recognition of the condition. Thorough education of parents is required if they are to observe the urologic habits of their children. Many infants are never observed in the act of voiding, and a surprising number of mothers are unaware of the intervals between diaper changes. A diaper which is continuously wet despite frequent changes is naturally one of the first signs of urinary incontinence.

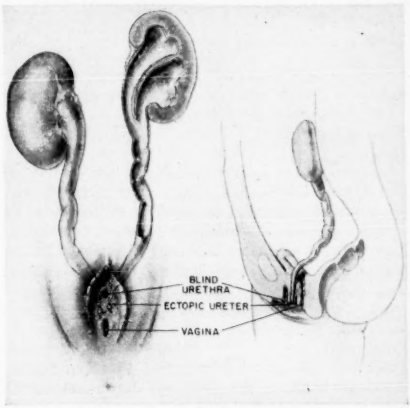

Fig. 2.—Composite drawing showing blind urethra, ectopic orifices, bilateral hydroureteronephrosis, and left double kidney.

Urologic evaluation should not be delayed. Ectopic ureteral orifices are usually surrounded by tissue producing obstruction and leading to prolonged urinary infection with pyelonephritis and renal damage. Other cases of urinary incontinence are equally serious, including bladder neck obstruction due to contracted vesical orifice or congenital urethral valves with resultant overflow incontinence. Congenital urinary fistulas with or without communication with the gastrointestinal tract also demand early surgical correction.

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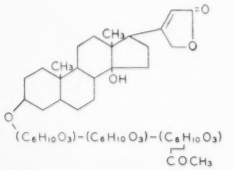
COUNCIL ON DRUGS

NEW AND NONOFFICIAL DRUGS

The following descriptions of drugs are based upon available evidence and do not in any case imply endorsement by the Council.

H. D. KAUTZ, M.D., *Secretary.*

Acetyldigitoxin (Acylanid).—The alpha acetyl ester of digitoxin.—The structural formula of acetyldigitoxin may be represented as follows:



Actions and Uses.—Acetyldigitoxin, introduced in 1954, is a crystalline cardiac glycoside which is derived from lanatoside-A (a naturally occurring glycoside of Digitalis lanata) by chemically controlled, enzymatic removal of a glucose molecule. Clinically, the drug produces the therapeutic and toxic effects of digitalis and related principles. Acetyldigitoxin is characterized by a relatively rapid onset and a short duration of action as compared with digitoxin. Typical digitalis effects become discernible within two to four hours after oral administration. Because the drug is dissipated more rapidly than digitoxin, its effect is more quickly reversible; signs of intoxication disappear within one to three days after discontinuing treatment. Approximately 66% of an orally administered dose is absorbed from the gastrointestinal tract.

Acetyldigitoxin is used in the same manner as other cardiac glycosides for the treatment of congestive heart failure and/or auricular fibrillation and paroxysmal tachycardia. The drug has a high rate of fixation to serum albumin and is, therefore, well suited for maintenance treatment in chronic heart failure. Its bradycardic effect is pronounced in patients with auricular fibrillation who have a rapid heart rate. (See the general statement on digitalis and related principles in New and Nonofficial Drugs.)

Although acetyldigitoxin has shown a slightly more favorable therapeutic ratio in some studies, its toxic potentialities are the same as with other digitalis preparations. As with all other cardiac glycosides, constant supervision is imperative to avoid the adverse effects of overdigitalization. Gastrointestinal symptoms, which may be expected in approximately 20% of patients despite the most careful adjustment of dosage, are indicative of excessive dosage. Such effects usually precede cardiac arrhythmias and are readily reversible upon reduction in dosage or discontinuance of medication.

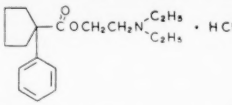
Dosage.—Acetyldigitoxin is administered orally for digitalization and maintenance. Since the drug is a pure glycoside, which is chemically well defined and stable, it is standardized gravimetrically rather than by biological assay. Dosage must be carefully adjusted according to the response of the individual patient and the appearance of toxic manifestations.

For rapid digitalization, 1.6 to 2.0 mg., with an average of 1.8 mg., is given within 24 hours, either as a single dose or in three or four divided doses. Some investigators have employed as much as 3.0 mg. in one day for initial digitalization, but this dose appears to be excessive from the standpoint of toxicity. For slower digitalization, daily amounts ranging from 0.6 to 1.4 mg., with an average of 1.0 mg., may be given for two to six days. Alternatively, the drug may be given in doses of 0.2 mg. three or four times daily until the therapeutic effect is achieved. The average maintenance dose of acetyldigitoxin is 0.15 mg. per day, with a range of 0.1 to 0.2 mg.

Preparations: tablets 0.1 mg. and 0.2 mg.

Sandoz Pharmaceuticals, Division of Sandoz, Inc., cooperated by furnishing scientific data to aid in the evaluation of acetyldigitoxin.

Caramiphen Hydrochloride (Panparnit).—2-Diethylaminoethyl 1-phenylcyclopentanecarboxylate hydrochloride.—The structural formula of caramiphen hydrochloride may be represented as follows:



Actions and Uses.—Caramiphen hydrochloride, introduced in 1949, is a synthetic antispasmodic agent which is used in the medical management of paralysis agitans (Parkinson's disease). It may be classified pharmacologically as an atropine-like drug. However, it has much weaker mydriatic and antisecretory effects than do the belladonna alkaloids while, at the same time, exerting a potent spasmolytic effect on smooth muscle. Caramiphen also relieves spasticity of voluntary muscle, an action believed due to peripheral cholinergic blockade plus central inhibition on cerebral motor centers.

Caramiphen is generally considered to be better suited for so-called postencephalitic Parkinsonism than for the "arteriosclerotic" or "idiopathic" types of the disease. The drug apparently has little effect on tremor but, in favorable cases, may afford some relief from rigidity. This relief is by no means complete; therapy is usually considered beneficial if muscle spasm is relieved by about 25%. As with other anti-Parkinsonian agents, there is no reliable criterion on which to predict responsiveness to caramiphen. In general, however, patients who respond well to the belladonna group of drugs will also show a favorable response to caramiphen. Although caramiphen appears to serve a useful purpose for the symptomatic treatment of some patients with paralysis agitans, it should be borne in mind that the long-term management of this disease with any therapeutic agent is unsatisfactory.

Giddiness and weakness occur frequently during the course of therapy with caramiphen. Other less frequent side-effects are chiefly atropine-like and include dryness of the mouth, blurring of vision, dizziness, faintness, and hypotension. Owing to its anticholinergic classification, caramiphen should be used cautiously, if at all, in patients with glaucoma, prostatic hypertrophy, urinary retention, or marked vegetative nervous system dysfunction.

Dosage.—Caramiphen hydrochloride is administered orally. Dosage must be highly individualized according to therapeutic response and appearance of side-effects. Initial dosage should be low, and the increase gradual. Changes from other anti-Parkinsonian medication should also be gradual, without abrupt stoppage of the previously used drug. Individual doses of 12.5 mg. may be given five times on the first day, with daily increments of about 50 mg. in the total daily dose until disagreeable side-effects begin to outweigh the beneficial effects. Maintenance doses generally range from 90 to 600 mg. a day, given in divided doses at intervals of two to three hours, throughout the day.

Preparations: tablets 12.5 mg. and 50 mg.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of caramiphen hydrochloride.

Safflower Oil (Saff).—An oily liquid extracted from the seeds of the safflower, Carthamus tinctorius. Safflower oil contains 74.5% linoleic acid and 6.6% saturated fatty acids.

Actions and Uses.—Safflower oil is a natural substance rich in linoleic acid, an essential unsaturated fatty acid. When given in sufficient quantities to subjects with hypercholesteremia, certain unsaturated fatty acids (including those in corn oil and cottonseed oil) have been reported to lower serum cholesterol levels. This effect is variable and is not readily discernible in subjects with normal or near normal cholesterol levels. Safflower oil does not lower serum cholesterol levels to any appreciable extent unless it is substituted for saturated fatty acids already in the diet. For maximal lowering effects, it is necessary to achieve a certain ratio of food fats; this ratio should be approximately one part saturated fatty acid to three parts unsaturated fatty acids. This means that, for an appreciable effect, large amounts of unsaturated fatty acids such as those in safflower oil must be given while the intake of ordinary dietary fat is drastically reduced.

Safflower oil was introduced in 1957 and is proposed for clinical use in patients with hypercholesteremia with a family history of heart disease, in patients who have suffered myocardial infarction, and in those displaying evidence of coronary insufficiency. The rationale for such use stems from the statistical relationship that is commonly supposed to exist between elevated blood cholesterol levels and the frequency of atherosclerosis and its clinical complications. The fact that there is a significant statistical relationship between two variables does not prove that one causes the other. Nevertheless, it seems reasonable to postulate that sustained reduction in blood cholesterol levels, for which safflower oil is proposed, may be desirable. It remains to be shown, however, that safflower oil or any other cholesterol level-lowering agent has any effect, good or bad, in terms of the over-all physical status of the patient. Its clinical use must therefore be considered experimental.

In contemplating the use of safflower oil, it should be borne in mind that the proposed daily dose provides about 450 calories. If taken without a corresponding reduction in regular dietary calorie intake, weight gain may be expected. This is undesirable, since obesity in itself is commonly

associated with elevated blood cholesterol levels. In fact, hypercholesteremia may often be improved simply by a program of weight reduction. For these reasons, special care should be given to the administration of safflower oil to obese patients.

Except for a slight tendency to produce diarrhea, safflower oil has been notably free of side-effects. Like other fats, it is a cholecystagogue and should be used cautiously in patients suffering from gallbladder disease.

Dosage.—Safflower oil is administered orally. The proposed daily dose is approximately 75 cc. of a 65% emulsion given in divided doses. To have any effect, therapy with safflower oil must be accompanied by a simultaneous reduction in the intake of animal fats and hydrogenated vegetable oils.

Preparations: emulsion (oral) 65%.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of safflower oil.

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The Council has authorized publication of the following report.

PHILIP L. WHITE, SC.D., *Secretary.*

AWARD OF RESEARCH FELLOWSHIPS IN CLINICAL NUTRITION

Ten fellowships for research in clinical nutrition have been awarded by the Nutrition Foundation, Inc., and the Council on Foods and Nutrition. They have been given in honor of Dr. Virgil P. Sydenstricker, recipient of the 1958 Joseph Goldberger award in clinical nutrition. A fellowship is granted to a medical student to permit him to carry on research in some phase of clinical nutrition during the nonacademic portion of the school year. Each grant consists of $600. Application is made by a senior investigator, and the fellowship is administered by him. The Council was impressed with the interest shown in these fellowships and had a difficult time selecting 10 from the many meritorious applications submitted.

This fellowship program is a part of the joint effort of the Nutrition Foundation, Inc., and the Council on Foods and Nutrition to stimulate staff members and students of schools of medicine to take a more active interest in the science of nutrition as an integral part of medical practice.

The 1959 fellowships have been awarded for the following research:

1. Niacin and niacin-containing cofactors in hepatic lymph. Senior investigator, L. S. Dietrich, Ph.D., department of biochemistry, University of Miami.

2. The possible biosynthesis of vitamins A and D in fish. Senior investigator, James H. Jones, Ph.D., department of biochemistry, University of Pennsylvania.

3. The effects of iron stores and growth on iron absorption. Senior investigator, Thomas C. Chalmers, M.D., department of medicine, Harvard University.

4. Vitamin supplementation and the excretion of urinary oxalate. Senior investigator, Hans H. Zinsser, M.D., department of urology, Columbia University College of Physicians and Surgeons.

5. Cholesterol and carbohydrate metabolism. Senior investigator, W. H. Sebrell Jr., M.D.; student, Kenneth J. Berkes Jr., Institute of Nutrition Sciences, Columbia University School of Public Health and Administrative Medicine.

6. Studies on the rate of hydrolysis (in vivo and in vitro) of vitamin A esters. Senior investigator, Edward G. High, Ph.D., biochemistry department, Meharry Medical College.

7. The determination of body density of infants and children and the effect of diet on body composition. Senior investigator, Samuel J. Fomon, M.D., department of pediatrics, State University of Iowa.

8. An enzymatic and metabolic study of specific amino acids and the effect of certain nutritional conditions. Senior investigator, Alton Meister, M.D., department of biochemistry, Tufts University.

9. Protein and amino acid requirements of rats following experimental injury. Senior investigator, Otto W. Neuhaus, Ph.D., department of physiological chemistry, Wayne State University.

10. The relationship of lipemia clearing to coronary artery disease. Senior investigator, John F. Mueller, M.D.; student, Robert Poe, department of internal medicine, University of Cincinnati.

MEDICINE AT WORK

- Danger—Garment Bags!
- Health of Workers
- A Shoestring Clinic
- Rural Health Session
- What Is Psychotherapy?
- Rehabilitation Directory

Credit at the Hospital

The use of credit cards has become so widespread that at least one confident card holder tried to use his recently to pay a traffic fine. The fact that he failed indicates only that traffic courts are included in the diminishing minority that still insist on hard cash payment. Even hospitals, it appears, are taking the cue.

In Savannah, Ga., the 55-bed Telfair Hospital has instituted a credit card system of its own. Theirs is actually an improvement on the standard system since it not only establishes an immediate credit standing, but also relieves the patient or his family of lengthy recital of social history, formerly required for admission.

Here is how it works:

Every person with a previous acceptable credit experience at the hospital is mailed a "Master Social Information Sheet." When the information is returned, a credit card is issued for each member of his family. At the time of hospitalization, the patient need only present this card to the admitting clerk.

Upon discharge, he is free to leave the hospital without business office clearance. A bill for all charges is sent at the end of the month.

Card requests from persons without past credit experience at the hospital follow the same procedure except that a full credit statement is obtained and the application is checked through the local credit bureau.

Telfair Hospital believes the new plan not only greatly facilitates admissions and discharges but builds good will at the same time.

Left, children risk death by suffocation when they toy with plastic material. *Right*, Dr. Paul B. Jarrett, who recognized widespread hazard after four children died in Phoenix.

How One Physician Warned a Nation

Medicine and the Press—A Case of Joint Effort to Sound an Alarm

Milton Golin

The stories his colleagues were telling to Dr. Paul B. Jarrett of Phoenix carried an ominously familiar ring. Four children had died in recent weeks—suffocation while playing. What were they playing with? The other physicians told him: Plastic garment bags—why do you ask?

Because he did ask, thousands of physicians and patients across the land now are alerted to another of the many dangers which threaten the lives of children in our growingly complex society. This is what happened after Dr. Jarrett became curious and got his answers:

He determined on further inquiry that a number of laundry and dry cleaning establishments in the Phoenix area—like places elsewhere in the United States—in recent months had been substituting thin plastic bags for the paper sacks previously used for finished garments. He also learned that some parents were tossing the plastic to their children as "toys" after removing the cleaned clothing. Often the happy youngster, quite naturally, would place the bag over his head. Dr. Jarrett is reasonably certain that is what happened to the four children who suffocated in his city. Listen to his version of what probably ensued:

"An electrostatic charge may have been generated by friction from handling. The youngster, in peering through this material, is apt to have it literally grab him through electrical attraction to his face. If this happens only the prompt intervention of an adult will prevent tragedy. This dangerous material won't tear when a child fights it. Dizziness, inability to think, spasms of muscles occur with more and more rapid breathing. Vomiting with inhalation of undigested food puts a finish to this terrible tragedy."

Time for Alert

Now came the time for alert. Dr. Jarrett, conferring with fellow officials of the Maricopa County Medical Society (he is chairman of the safety committee and is credited with bringing about installation of seat belts in all state highway patrol cars and in many private autos in Arizona), helped draft a warning bulletin. He sent a copy to the *Arizona*

Republic, a newspaper whose editorial staff immediately recognized a public service duty inherent in the news itself. A news photographer posed a picture of a boy hooded by a plastic bag, to further illustrate the hazard.

At the same time, the county medical society early this year notified Bernard J. Conley, Ph.D., secretary of the A. M. A. Committee on Toxicology, which for years has been sounding the alarm of child-poisoning dangers lurking in many innocent-appearing household chemicals (see box and also Medicine at Work, THE JOURNAL, Jan. 12, 1957). Dr. Conley, in turn, saw an urgent need to broadcast the notice.

Citing the situation in Phoenix and quoting from the newspaper report, he sent letters to Metropolitan health departments, poison control centers, and other interested groups and individuals in scattered parts of the country. The reaction was immediate. In New York City, the assistant health commissioner, Dr. Harold Jacobziner, helped prepare a technical notice entitled, "Infants Dying from Suffocation by Plastic Material," and it was distributed to all poison control centers, maternal and child staffs, and superintendents of hospitals in that metropolitan area. Chicago's health commissioner, Dr. Herman N. Bundesen, last month took similar action. And in other communities, large and small, the danger was made known, always with the cooperation of local newspapers. At last report, the National Safety Council was preparing to publish an alert in its *Home Safety Review*.

Lives Saved

There is no way of determining how many young lives will be saved because of one physician alerting many—and because of newsmen then carrying the word to millions. That young lives were and will be saved cannot be doubted, however—just as death is being averted in similarly immeasurable medicine-press efforts involving abandoned ice boxes, imported highball stirrers containing toxic beans, and poison-laden Christmas ornaments. In those efforts, too, starring public service roles have been played by individual physicians and individual newsmen, by medical societies at all levels, and by newspapers in all ranges of circulation.

Meanwhile, Dr. Jarrett, the Phoenix surgeon who helped sound the early alarm, feels it cannot be repeated too often. He says: "Such a horrible combination as a child playing with a venomous reptile would not result in death as quickly as suffocation by the plastic film which clings . . . with diabolical tenacity. These deaths are the result of carelessness. They could have been prevented. Through knowledge they will be prevented in the future."

Chairman of the A. M. A. Committee on Toxicology is Dr. Torald H. Sollmann of Cleveland Heights, Ohio. Other members are Drs. Harvey B. Haag of Richmond, Va.; Irvin Kerlan of Washington, D. C.; Jay M. Arena of Durham, N. C.; Arnold J. Lehman of Washington, D. C.; Edward Press of New York City; Mr. Justus C. Ward of Washington, D. C.; and Mr. Jerome Trichter of New York City. Bernard E. Conley, Ph.D., of Chicago, is Staff Secretary.

Stuff That Poisons

A recent compilation of newspaper clippings which cover the period of 1955 through 1958 shows that 707 persons died in the United States as the result of accidental poisoning. The A. M. A. Committee on Toxicology, which collects such news items, reports that poisoning from internal medications dominates the pattern of nonfatal injury. Next in frequency are cases due to insecticides and rodenticides—followed by household chemical agents, industrial and other solvents, and miscellaneous products such as cosmetics. Recently, the Committee secretary met with representatives of the National Safety Council and the National Association of Poison Control Centers to consider a public educational campaign on the prevention of accidental poisoning.

School Sports May Be Healthful, But They Are Not Health Education

The academic tendency to make health education a stepchild in the curriculum has become commonplace in some public schools.

It was with this in mind that the Joint Committee on Health Problems in Education recently called for a re-emphasis on health teaching. The Joint Committee—which unites the American Medical Association, and the National Education Association in common cause—did not ignore physical education; in fact another of the group's resolutions called attention to opportunities in this field. But members did take pains to point out that health courses deserve consideration on their own.

This resolution on health teaching, approved at the Joint Committee's meeting in Chicago last month, calls on educators to employ teachers qualified in this field, and to allow them adequate class time to develop a comprehensive program. Adequate class time is defined as one period a day for one year in both junior and senior high schools.

Other Joint Committee resolutions call for increased physician interest in the health and health education problems of schools, special attention to health challenges generated by the use of school buses, and control of the hazards inherent in the use of carbon tetrachloride in science classes.

Much of the Joint Committee's three-day session was spent in editing its publications, a common group activity. Less common was its appointment of a subcommittee to plan a 1961 ceremony to celebrate the Joint Committee's own birthday—its 50th.

When 64 Health Groups Foster The Well-Being of Workers

Medical societies, through meeting periodically in factories, can promote occupational medicine.

Consumers foot the bill when a company neglects employee health.

We are entering the atomic age without having solved all the health problems of the machine age.

Farming is more hazardous than any other single occupation.

Those sample points were brought out in Chicago last month for more than 500 representatives of government, labor, management, and medicine who attended a three-day forum sponsored by the National Health Council. The conference on "The Health of People Who Work," was under the chairmanship of Dr. James H. Sterner, medical director of the Eastman Kodak Company and a member of the A. M. A. Council on Industrial Health. The A. M. A. is one of 64 sponsoring agencies of the National Health Council. Following are selected quotes from participants in formal presentations, panel discussions and informal news conferences:

The medical society should foster education in the general area of occupational health during the undergraduate medical school years, since every physician will be called on to administer to the industrial worker at one time or another.

—Dr. Kieffer Davis, medical director, Phillips Petroleum Company

The doctor needs from management adequate assistance and support to permit him to spend much more time in evaluating and improving the work environment than in sewing up fingers and dispensing pills.

—Dwight J. Thompson, executive vice-president, Champion Paper and Fibre Company

I would estimate that 90% of the health problems in industry are not occupationally-oriented, and that half of these are either emotional or have emotional overtones.

—Dr. David Goldstein, medical director, *New York Times*

An industrial worker does not pick up his heart or his lungs or his body at the factory gate when he checks in. Nor does he leave them there when he checks out. Industrial health is tied up with home health.

—A. J. Hayes, president, International Association of Machinists

Why is freedom of choice of physician important? Because it aligns the inherent drive of the doctor to succeed in his profession with the best interests of the patient and therefore the public. Common sense tells us that the physician's dedication to high professional standards will be reinforced by enlightened self-interest.

—E. J. Faulkner, president, Woodman Accident and Life Company

Even with elaborate and early preparation, many who reach 65 become the lost generation when they are forced to retire. It is important to retire to something. To make a messenger boy out of a college president is to promote mental and physical deterioration.

—Dr. Frederick C. Swartz, chairman, A. M. A. Committee on Aging

The vast number of organizations for health need to be seen not only in relation to their individual purposes, needs and values, but also as they relate to other health organizations and to the cultural, economic, political and scientific environment.

—Ruth B. Freeman, Ed. D., incoming president, National Health Council

Dr. Freeman announced that next year's Forum will deal with "Health of Older People," under the chairmanship of Dr. Edward Bortz, former A. M. A. president and now a consultant to the Committee on Aging. That topic is as far-reaching, she noted, as this year's, which President Eisenhower described as follows in a telegram read at the opening Forum session on March 17:

" 'The Health of the People Who Work' represents a challenge directly related to technologic progress in preventive health measures. It involves the well-being and productivity of almost 70 million workers. This is a challenge which can be met only by the combined efforts of management and labor, the health professions, government, private and voluntary health agencies, and civic and community groups."

Exams for Executives

Opinions that executives are more subject to unusual stresses and strains because of the positions they hold were critically evaluated at the most recent meeting of the A. M. A. Committee on Medical Care for Industrial Workers.

Members suggested that a 1957 A. M. A. policy statement on health examinations was just as applicable to executives as to other employees. They also felt that the examinations should be done locally to encourage continuity of care and follow-up. Committee members, citing observation and study, expressed the opinion that executives are not subject to any more stress and strain than other employees, but suggested that further exploration of such examinations, under adequate statistical control, might provide more reliable conclusions.

The Committee on Medical Care for Industrial Workers operates jointly under two Councils. Its report was discussed by the Council on Industrial Health last month and will be reviewed by the Council on Medical Service on May 2.

Industrial Health Posers

Immunization and Screening—Who, When, and for What?

What an occupational health program ought to do and how it ought to do it was suggested by the A. M. A. House of Delegates in a policy statement issued in 1957 (THE JOURNAL, July 6, 1957). But like all general documents, it dwelt on broad principles rather than specific judgments.

In an effort to shed light on some special problem areas that have become apparent, members of the A. M. A. Council on Industrial Health recently discussed proposed guide lines for industrial immunization programs and multiphasic screening examinations. The Council met in Cincinnati on Feb. 14 and 15 prior to the 19th annual Congress on Industrial Health.

In discussing a proposed guide for immunization, the Council pondered three major questions:

—Should an employer provide the protection for employees who, by reason of their occupation or job assignment, may be exposed to significant hazards against which immunization procedures are available?

—Should an employer provide these procedures in the face of an impending epidemic which threatens to disable so large a proportion of his employees as to interfere materially with operations, and against which immunization would not or could not be applied by community health resources in a short enough period of time to afford optimum protection?

—May an employer participate in community-wide immunization programs at the request of, and in cooperation with a local medical society and community health agencies?

On the matter of multiphasic screening examinations (relating to a battery of tests), especially those in which mobile laboratory units are used, committee members expressed the opinion that such screening, in selected instances, might be worthy of future trial if carefully conducted and confined to a relatively few, simple tests—such as urinalysis, hemoglobin level determination, differential blood cell count, and chest x-ray, according to the needs of the particular situation.

They felt that if such screening is related to the occupational environment, it should be considered to come within the scope, objectives, and functions of the occupational health programs, as set forth in the official A. M. A. statement. These same committee members also expressed the opinion that multiphasic screening should include provision for a follow-up program, that the tests should be performed by qualified personnel, and that the interpretation should be made by the individual's personal physician.

Members and staff of A. M. A. Council on Industrial Health meet in Cincinnati.

Rehabilitation Directory—New Instrument for the Physician

A patient recovering from severe illness or disability often needs more than continuing medical aid to resume his place in society. But how can physicians guide him to other agencies to meet his need for social service, vocational counseling, or job placement?

Feeling that this is an area in which state and county medical societies can be of help to their members, the A. M. A. Committee on Rehabilitation, meeting last month in New Orleans, approved a booklet that tells "how to do it." Called "Medicine's Back to Work Plan," the pamphlet is based on recommendations, made last December by the House of Delegates, which urges state associations to form committees on rehabilitation.

The purpose of these committees would be to review state-wide rehabilitation programs and to establish liaison with other groups interested in the problems of the disabled and handicapped. The House also recommended that state associations urge county societies to survey the rehabilitation facilities available in their areas.

Such surveys could be used, the booklet states, to develop informative rehabilitation services directories. Designed for the use of physicians and others interested in the challenges of rehabilitation, such directories should list hospitals, nursing homes, nursing agencies, rehabilitation centers, training schools, sheltered workshops, and social and family service agencies. A sample survey form and suggestions for the preparation of a local directory are included in the booklet, which states:

"More than two million disabled persons in the U. S. today could be restored to useful jobs—if shown proper guidance and care, taking into consideration the abilities they still have, and their physical limitations."

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Keeping Them Healthy Down on the Farm

Hampered, but not defeated, by a late winter blizzard that boomed across the plains, nearly 600 rural residents from several Midwest states gathered in Wichita, Kan., last month for the 14th National Conference sponsored by the A. M. A. Council on Rural Health. They joined physicians, nurses, teachers, editors, extension workers, and dentists in discussions of such challenges as mental health, the cost of medical care, animal diseases that affect humans, and health education.

"How you feel about other people is one aspect of mental health," said Dr. Alonzo Peeke, a general practitioner from Volga, S. D. "It's also how you get along with yourself, and how you are able to meet the demands of life. It's far more than just the absence of mental illness."

Dr. Prescott W. Thompson cautioned his audience that facilities for the care of mental patients must be "hospitals" in every sense of the word. Dr. Thompson, who is director of outpatient service for the Menninger Clinic, said: "To the lay public, the mental hospital is the most visible evidence of what psychiatry is and what it has to offer. These hospitals must shed any resemblance to the old asylums with their gloomy exteriors, and their hopeless interiors."

Dr. Thompson believes that such rejuvenation is important for two reasons: The patient and his family must view the mental hospital as a treatment center—a place in which to get well; and a good mental hospital is the best means by which to recruit medical students and others into psychiatry and its related disciplines.

In discussing the cost of modern medical care, Dr. Conrad Barnes of Seneca, Kan., said: "Increases are mostly in the fields of drugs and hospitalization, and are certainly justifiable in the light of modern medical care." He noted that while modern drugs and hospital techniques may be expensive when compared with those of "grandfather's day," they actually constitute an economy in getting patients well faster and better. "Consider the reduction in communication time between major cities from days to seconds," Dr. Barnes said. "It was done only at a tremendous cost, but who would say the new service was not worth it; who would want to go back to the 'good old days'?"

Control of disease in animals, Dr. Martin P. Hines told the conferees, is an area in which enlightened rural groups cooperating with veterinarians, physicians, and public health workers have made dramatic progress. Dr. Hines is the chief of the Veterinary Public Health section of the North Carolina State Board of Health and a member of the Council's advisory committee. He noted that effective campaigns have been waged against Texas fever, bovine tuberculosis, and brucellosis. He warned, however, that other diseases have appeared to take their place. Leptospirosis is one; Q fever is another.

Despite the apparent success of modern agricultural methods, Dr. Hines pointed out that 10% of all farm animals died last year from diseases or parasites. "Mastitis alone," he said, "causes an annual 5% loss in milk production."

In addition, many animal diseases are secondarily transmissible to man. Such zoonoses now number more than one hundred. He said: "Among the difficulties contributing to the control of animal diseases are: the poor understanding of the ecology of man, animals, and birds; faulty diagnosis and reporting systems, and the fact that rural dwellers often feel they must live with many of these diseases."

Calling for a "temporary partnership between

One Woman's Opinion

"Take the tractor, boys, and pull old Doc Schneider out of that mudhole." The fact that her physician-husband was fresh out of internship made the terminology incongruous, but to Mrs. Kenneth Schneider of Brown County, Indiana, it also meant that she and her husband had been accepted by the rural community in which they had chosen to settle.

Some of the trials of their rural practice were told by Mrs. Schneider to those who attended last month's A. M. A. Conference on Rural Health, but the diminutive housewife and former nurse left her audience with no doubts about the country being a good place to live.

Mrs. Schneider told how she and her husband, both city reared, took the first plunge into practice in a town of 526 people in partnership with another married physician. Their first office (where she served as nurse) was in a makeshift space above an appliance store, and both couples lived in the same 50-year-old building. Today, they have a modern clinic, and Dr. and Mrs. Schneider live in a home built on an acre of rolling, wooded ground four blocks away. She says:

"Kenny does all those things many think a family doctor no longer does—performing minor surgery, setting fractures, prescribing medicine, delivering babies, making home calls, and acting as family confessor. The partnership assures us that patients will always be taken care of, and he still has time to spend with his family."

Romance sometimes became enmeshed with medicine in those first days. Mrs. Schneider recalled one time when she had gone with her husband on a night call, and he put his arm around her as they rode home in the moonlight. "Honey," he said as she waited expectantly, "did you notice that patient's hyperactive reflexes?"

Audience as well as program speakers air their views on multiple challenges of rural health at A. M. A.-sponsored National Conference in Wichita.

patient and physician during treatment," Dr. F. S. Crockett, chairman of the A. M. A. Council on Rural Health, said such an arrangement was vital to health. "The doctor examines, diagnoses, and prescribes," he said, "but it is the patient who must follow directions, and do what he can to get well and stay well."

Health Versus Patronage In Youngstown, Ohio

It took more than 14 years, but the Mahoning County Medical Society—with the help of dentists, druggists, veterinarians, and members of other health groups—finally has won its battle to get a full-time physician health commissioner for the 170,000 residents of Youngstown, Ohio. The story is another example of physicians working with others to solve a community problem (see Medicine At Work, THE JOURNAL, March 16, 1957).

The concerted effort that succeeded in amending the city's charter to call for a professional health officer began in early 1957 when the society's new president, Dr. Stephen Ondash, persuaded the group to take it on as a project. Even this was no simple matter since the society had tried repeatedly to persuade the city council to put such an amendment on the ballot for a referendum, and for 14 years the efforts had failed. The chief reason

Workshops Help Kansans Solve Their Own Health Problems

Participants at one session of the recent A. M. A. National Conference on Rural Health became citizens of an imaginary town called America. The purpose of the transformation was to show how community workshops are being used to help solve the health problems of many Kansas communities.

Such workshops are sponsored by the state medical association and its county societies and are guided by Dr. V. E. Wilson, assistant dean of the University of Kansas School of Medicine, and Mr. Oliver E. Ebel, executive secretary of the Kansas Medical Society. At the request of any Kansas community, they recruit a team of resource people—physicians, public health workers, educators, clergymen, engineers, and sociologists—to staff a meeting of the town's residents.

No attempt is made by the visitors to either identify the community's major health problems nor to volunteer possible remedies. Instead, the moderator asks individual residents to state their community's problems. In explaining the method to his Conference audience, Mr. Ebel said that such an approach usually elicits many difficulties the town is experiencing, and that the audience itself soon decides on those that are uppermost.

Having succeeded in identifying the problems, the moderator then asks members of the audience to suggest possible solutions. "Usually," Mr. Ebel told his listeners, "once the meeting has reached this stage, all it needs is guidance." Those who have attended as resource persons offer information only when asked and confine their remarks to relating the experiences of other communities with similar challenges.

Even those attending the Rural Health Conference, in their capacities as residents of the fictional town of America, found a good many things to be concerned about. The afternoon session generated considerable discussion about the length of time children must spend on school buses, the lack of physical examination requirements for school children, the travel required to see a dentist, and facilities for the aged.

In actual practice, Mr. Ebel said, these meetings may vary in length from one to three days and occasionally take some surprising turns. One gathering became so interested in the construction of hospital facilities that an expert in this field, missing from the resource panel on the first day, was alerted and arrived by plane in time for the second day's session. In another, enthusiastic citizens enticed members of the town's council into the hall for a full scale airing of a community sore point: garbage disposal.

was that the new position required a civil service rating, and politicians of both parties preferred to see it remain an appointive patronage plum.

A Public Health Committee headed by Dr. John J. McDonough first approached the city council with a request that the charter change be submitted to the voters. Expecting a refusal, it also went ahead with preparations for a widespread petitioning. The councilmen did refuse, and so the committee mounted a massive two-fold campaign—first to acquire the thousands of signatures necessary to force a referendum, and second to educate the citizens of Youngstown to the desirability of the charter revision.

Petitions were sent to every physician, dentist, chiropodist, and druggist in the city. Next went weekly letters reminding them of the importance of the effort. Their secretaries were spurred in their efforts to collect signatures by the offer of three cash prizes for the most successful, and members of the woman's auxiliary checked on the progress of their husband's petitions. When the time came to file, the committee found its petitions had 13,000 signatures, more than the required percentage to get the question on the ballot.

Then began the second stage of the campaign—to convince Youngstowners that they ought to vote for the charter amendment. With the aid of an advertising agency, a brochure was prepared explaining the value of a qualified health commissioner. A copy was mailed to every city residence, and other copies were displayed by doctors, dentists, pharmacists, veterinarians, and hotel keepers. Advertisements were placed in newspapers, and on radio and television. And above all, speeches were made. "I spoke publicly on the subject more than 30 times myself," said Dr. McDonough.

Voters saw the value of the amendment and passed it by a substantial majority last November.

For a time thereafter, it appeared that getting the charter revised might have been less of a task than finding a physician to fill the position it had created. The supply of doctors interested in public health did not begin to meet the demand.

Then, entirely unsolicited, Dr. Leonard A. Blum appeared. After 24 years of private practice in Niles, Ohio, he left to obtain a master's degree in public health. Having done so, he sought to return to his birthplace—Youngstown. On invitation, he met with the new board of health, and was hired.

Youngstown now has its first full-time, qualified health commissioner.

Shoestrings, Lions, and Doctors

Combining Salesmanship with Public Service in Quest for Better Health

Thanks to a handful of matchbooks and three scraggly shoelaces, medical service is available today in the little town of Ariton, Alabama (population 750). There's more to it, of course—such as people, perseverance, and pride in community. Also involved is an all but fantastic new twist on the old story about selling refrigerators to Eskimos.

The Ariton story began a half dozen years ago but is being reenacted in variation of theme throughout rural America—wherever and whenever communities and physicians need to be brought together (see Medicine at Work, THE JOURNAL, Sept. 29, 1956; Oct. 11, 1958; and Feb. 21, 1959). How did Ariton stop being a doctorless town? It was like this:

At a meeting one autumn evening, the local Lions Club decided it was high time to raise money to build a medical office. So they held a contest right then and there. Matchbooks were passed out and each member was asked to give an impromptu sales talk on the product or company imprinted on the cover. The three presentations adjudged best were delivered by E. L. Fralish, Kyser Wilson, and D. B. Richardson. Their prize was one shoelace apiece—with the mission of parlaying these stringy items into an initial campaign fund. One was sold for $1

Placement Straws in the Wind

What is the current status of doctor demand and supply? While not complete, some indication may be found in the following recent reports from the A. M. A. Physicians Placement Service:

—Industrial relations department representatives for defense project construction firms in Greenland, for the DEW (distant early warning) line in Canada, and for an electronics and missile firm in the U. S. are looking for medical directors at salaries of up to $25,000.

—Correspondence and observation in the past year indicate that a number of highly trained young surgeons are being forced into "quasi general practice," possibly because of a saturation of the specialty of surgery. The reason and extent of this condition cannot be determined for certain at this time; however, distribution studies, by specialty, are now under way.

—Liaison with the A. M. A. Council on Medical Education and Hospitals now is being refined so that medical schools and physicians with academic positions in mind may be brought together through the placement office, which functions under the Council on Medical Service.

and the money bought more laces, which then were sold for amounts ranging from a dime to a dollar. Within weeks, the "Shoestring Committee," with the help of merchants contributing other goods for sale, had a $300 kitty—plus a lot donated by the town for a medical office site.

Now came the supersalesmanship. Lions Club members decided to hold an auction unlike any other ever conducted anywhere. Townspeople would be invited to "bid" for the right to finance unseen assets of the unbuilt clinic building. This novel idea captured the imagination of Ariton—and it worked. Bidding $100, one citizen won over his neighbors for the "privilege" of giving and installing windows of the clinic. Another $100 offer entitled the bidder to dig necessary ditches for construction. A third $100 bid included the privilege of drawing up blueprints of the building. Other offers brought both money and materials for naming the clinic and installing a water fountain outside (see photo).

"It was the screwiest auction I ever attended," said one Lion, "but it sure caught on. Everybody, it seemed, was scrambling for the right to give money and be identified with the project in some special way. We soon had a seven-room clinic."

View of the medical office "built on a shoestring" in Ariton, Ala. Note, at lower right, water fountain, which was installed by a townsman who outbid his neighbors for the privilege of "sponsoring" it.

Lions Club members then began seeking a doctor to occupy it. One physician moved in after the A. M. A. Physicians Placement Service and the Medical Association of the State of Alabama went into action. But last year he moved away for health reasons and because the office was too far from his home. So again medical association help was sought—and last fall the townspeople turned out to welcome Dr. George M. Malouf, a graduate of the University of Vermont College of Medicine.

His may be the only medical practice in the nation that had its start, literally, on a shoestring.

When Lions Roar

Lions Clubs in many parts of the country have taken the initiative (along with Ariton; see story) to improve medical service. Because their activity has brought physicians to so many doctorless towns, closer liaison now is being established between Lions International and the A. M. A. Physicians Placement Service. Following are excerpts from letters to the placement office from local Lions Clubs:

"Our Lions Club has for its major project this year the procuring of a country doctor for our community. We have already procured a lot and we anticipate no trouble at all in financing the project as the public is very enthusiastic . . ." (Kentucky)

"Our Lions Club is greatly concerned about the medical services and facilities available to the people and industries of our community . . ." (Pennsylvania)

"Thanks to your placement service, we were able to secure a full time resident doctor, to take charge of our new Lions Club Medical Center . . ." (Indiana)

Replies to almost all such inquiries refer to the appropriate state medical society and include two A. M. A. booklets, "A Doctor in Your Community" and "Community Efforts Provide Medical Facilities." In addition, Miss Dorris Webb, the staff assistant at A. M. A. headquarters in Chicago, may suggest that the Lions Club obtain the free loan (through its local medical society from the A. M. A. film library) of a 28-minute color movie, "A Citizen Participates." It tells of a girl, ill in a Kansas town where there is no physician, and how members of a fraternal group go about bringing in a resident physician.

So far, reports Miss Webb, none of the Lions Clubs which showed the film have let out a peep about the fraternal group involved. It is Kiwanis, which helped make the movie in its own continuing efforts to improve medical service in communities.

Medical Electronics—The Fruitful Marriage

The patient is placed in position, the technician makes minor adjustments to his equipment, and then steps behind his shielding screen. . . .

When he sets his timing switch, the x-ray technician will be bringing into play the results of more than a half-century of cooperative effort between physicians and engineers that has resulted not only in highly refined radiological devices, but a host of other electronic marvels (see Medicine at Work, THE JOURNAL, March 21, 1959).

The debt that medicine owes to electronic engineering was cheerfully acknowledged this month by Dr. Gunnar Gundersen, A. M. A. President. Writing in *Electrical Engineering* on the occasion

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of the 75th anniversary of the American Institute of Electrical Engineers, he stated: "The progress of science and medicine over the last century has been hand-in-hand, each benefiting from the other's discoveries and developments, and ultimately helping mankind."

Dr. Gundersen wrote that modern x-ray units not only provide better and more discriminatory diagnostic help than earlier ones, but also decrease the amount of radiation the patient receives.

Some Views of Lawyers on The Physician as a Witness

Attorneys are as interested as physicians in improving interprofessional relations, judging by letters accompanying early returns to a questionnaire being used by the A. M. A. Law Division. In addition to filling out the four-page form, a number of lawyers spoke their minds on matters of mutual interest to both professions:

On Doctor-Lawyer Rapport—

"A doctor in general practice is usually not familiar with court trials and is somewhat handicapped in that he has to be taught how to handle himself in the trial of a case. . . . Some type of course should be taught at medical schools—if it is not already—to give some actual experience in testifying in a mock trial."

On Legal Theory—

"The essence of the American system of jurisprudence is the adversary character of the proceedings. A system under which—through vigorous contest—we seek to arrive at the truth. Lawyers accept this as a matter of course . . . yet the physician accepts the critical analysis of his testimony as a personal affront."

On Fees—

"With a large number of doctors, the attitude seems to be that they are doing an attorney a favor to appear in his case. From the defendant's standpoint, this is not true. Insurance companies are willing and do pay whatever reasonable fee is charged, and the doctors in turn should be willing to devote such time as is necessary to the proper presentation of the case."

On Differing Points of View—

"The physician's skills and training are oriented to minimizing the residual disability after the patient has had the maximum benefits of treatment. The plaintiff's attorney, in the role of advocate, must maximize the injury so that in our adversary system of justice the client's best possible case is made out. It is the duty of the defense to minimize the damage, so consequently the physician and the defense normally have common objectives."

Doctor Meets Attorney

Medicine and Law—Common Goals But Few Pat Answers to Problems

American jurisprudence is based on the adversary system—a partisan contest in which discovery of the truth is expected to result from the pleadings of opposing points of view. This same system was applied at a Washington conference last month when nearly 500 attorneys and physicians met to hear two-sided discussions of subjects in which medicine and the law have common interests.

Topic selection was varied, ranging from a sober evaluation of narcotics addiction to a humorous account of the presumed woes of a medical witness undergoing cross examination. The Washington session was the first of three similar regional meetings sponsored by the A. M. A. Law Division. Two more were scheduled for early this month in Cleveland and Salt Lake City.

Physicians who dread the thought of appearing as a medical witness through fear generated by tales of "ruinous" cross examination can relax, according to Irving Goldstein, professorial lecturer in trial technique of Northwestern University Law School. "I searched the entire country for documented examples of such technique to be included in a legal text," he said, "and I ended up with only five that were usable. A typically devastating question was 'Have you ever made a mistake, doctor?' "

Noting that law students are advised never to cross examine an expert in his own field, Goldstein said: "A physician who goes into court prepared to tell the truth, and who does not exaggerate his background and experience has nothing to fear." He warned, however, that the opposition will probably be well prepared on the medical subject in point and that the physician should review his own records, x-rays, and the medical literature prior to his appearance.

Impartial or Infallible?

Impartial medical testimony—that provided by an expert chosen by medical societies and appointed by the court—is another area in which the conference audience heard differing points of view.

G. C. A. Anderson, a former president of the Maryland State Bar Association, said impartial medical panels are the result of numerous cases in which conflicting medical testimony was presented by physicians "selected not for their medical qualifications or objectivity, but principally for their personality, manner of testifying, and jury appeal."

Metropolitan New York uses a rotating panel of expert witnesses available for call by the court to make pretrial examinations in matters of medical dispute. In Baltimore, a somewhat different plan is in effect. There the names of three experts are submitted to the parties in contest and they are asked

Drugs and Doctors

What is the physician's legal position if he prescribes narcotics for a patient who is an addict?

Federal law—and that of most states—limits the dispensing of narcotics by a physician to that done "in good faith and in the course of professional practice only." The catch comes in defining the phrase.

In 1922, the U. S. Supreme Court upheld an indictment alleging that a physician gave an addict prescriptions for 150 grains of heroin, 360 grains of morphine, and 210 grains of cocaine for use over a period of several days.

Then in 1925, the court reversed the conviction of a physician who had been charged under an indictment involving "four small tablets of morphine or cocaine."

In neither case was it alleged that the defendants failed to prescribe in the course of good professional practice.

The Joint A. M. A.-A. B. A. Narcotics Committee report of 1958 states: "There must be a new determination of the limits of good medical practice in the treatment of drug addiction, and an objective inquiry into the question whether existing enforcement policies, as well as existing laws, have unduly or improperly interfered with good medical practice in this area."

to agree on one. If they cannot, the court makes the choice.

The trouble with all such plans, argued attorney Elwood S. Levy of Philadelphia, is that they "presuppose that medicine is an exact science." He said: "No fair-minded man can deny that in a substantial number of cases equally competent and equally honest physicians can and do disagree . . . It seems obvious that to label a doctor as impartial does not for a moment mean that he is right. . . . [Yet] by designating a medical witness as court appointed and impartial, the court has in effect cloaked him with the robe of infallibility and imports that his conclusions are more worthy of acceptance than those of his medical bretheren who have not been thus distinguished."

Rule of Sympathy

The extension of the legal doctrine of *res ipsa loquitur* ("the thing speaks for itself") was characterized by R. Crawford Morris of Cleveland as "the rule of sympathy." The fallacy in extending the application of this rule, he said, is that when a bad result follows an operation it is presumed that the reason for the bad result must be some negligence on the part of the surgeon.

Standard legal philosophy is that he who affirms must prove, but the extension of *res ipsa loquitur* in malpractice cases, Mr. Morris argued, "hurls the doctor into the lion's den." He said: "It makes the physician an insurer of perfect results, and deprives him of his right to have his conduct judged by other physicians fully aware of the facts he faced at the moment of his decision."

This view was disputed by Hugh Head Jr., an Atlanta attorney, who said the rule had been invoked in such obvious cases as that in which the surgeon operated on the wrong patient, where the patient was given 10 times the proper amount of anesthetic, and where an electric needle being used to remove skin growths had set fire to alcohol used as an antiseptic. The physician, in effect, he said, contracts to do his work well and is held liable only when he has broken his faith.

Both Morris and Head agreed that the reluctance of physicians to testify against their peers had made the courts tend to sympathize with plaintiffs. "Doctors must realize," Mr. Morris said, "that they cannot have their cake and eat it too. If they refuse to testify, courts will provide other means of redress."

Enforcement or Education

In the discussion of narcotic addiction, Alfred Tennyson, chief counsel for the U. S. Bureau of Narcotics, voiced the Bureau's long-held belief that strict enforcement of laws against the sale or purchase of narcotics for other than medical or scientific use was the best way to meet the problem. He said that experiments with big city drug clinics in the early 1920's had produced "no evidence of cures or reduction in illicit drug traffic." "Present methods," he said, have reduced the addict ratio in the general population from 1 in 400 in 1915 to 1 in 3,500 in 1958. He said he was dismayed to note that "some members of the medical profession" have sponsored a plan whereby government-operated clinics would supply the drug addict with narcotics while attempting to "persuade" him to undergo treatment and rehabilitation.

Tennyson's view was opposed by E. J. Dimock, Judge of the U. S. District Court in New York, who said: "If severe laws have had any effect on the [drug] traffic it has not shown up in our court." Judge Dimock was a member of the Joint Committee of the American Medical Association and the American Bar Association which undertook a study of the narcotic problem. He said the Committee found that not enough was known to support more than one or two conclusions. One recommendation was that the two parent organizations study further the outpatient experimental clinic plan.

Painless and safe withdrawal procedures are now in use at federal narcotic hospitals, he said, "but treatment that an addict gets there is of little help to him outside. We must learn how to help our fellow human beings to live without resorting to this destructive evasion in a world full of temptation and strains."

Judge Dimock advocated the prevention of first contact as the ideal solution to the narcotic problem. He said: "If none of us had taken that first glass of beer, we would never have had that how-long-has-this-been-going-on feeling."

Psychotherapy Is Medicine

The application of psychological methods in the treatment of illness is a medical function. Any physician may utilize the skills of others in his professional work, but he remains responsible, legally and morally, for the diagnosis and for the treatment of his patient.

When a resolution containing that statement was adopted jointly by special committees of three major professional groups nearly five years ago there already was evidence that a few nonphysicians were practicing medicine by engaging in psychotherapy. "Psychotherapy is a form of medical treatment and does not form the basis for a separate profession," the resolution went on to state, adding, however: "The medical profession fully endorses the appropriate utilization of the skills of psychologists, social workers and other professional personnel in contributing roles in settings directly supervised by physicians."

Now there are indications that more and more nonphysicians, not content with merely using psychological understanding in carrying out their professional functions, are attempting to diagnose and treat individuals by psychotherapy. The indications are so ominous, in fact, that the A. M. A. Council on Mental Health (which issued the 1954 joint resolution, along with the American Psychiatric Association and the American Psychoanalytic Association) discussed the problem at length during a meeting in Chicago several weeks ago.

Council members at their Feb. 21 meeting cited reports from colleagues as well as patients, in an attempt to clarify and reaffirm the resolution for the benefit of the public and the medical profession. Several of them expressed the opinion that it should be unlawful for a nonmedically trained psychologist to engage in the independent practice of psychotherapy, and unethical for a physician to refer patients to such an individual for treatment of nervous, mental or physical disorders.

At the same time, however, they applauded the functions of psychologists in medical settings, for psychodiagnostic testing, and for analysis and counselling in education, vocations, aptitudes and job placement. As one member summed up the discussion:

"It cannot be too strongly emphasized that the unavailability of a specialist in nervous and mental diseases is not sufficient justification for referring a patient to a nonmedical specialist for treatment. The physician should himself treat such a patient, and try to obtain or provide neuropsychiatric services locally in the future. To do otherwise only serves to compromise ethical practice and to lower the levels of medical care."

More Ammunition Against Alcoholism

New onslaughts upon alcoholism as a massive disease problem (see Medicine at Work, THE JOURNAL, July 19, 1958) were indicated at the recent meeting of the A. M. A. Council on Mental Health. Members expressed their approval of a suggestion that the Woman's Auxiliary consider alcoholism as a major project for attack in 1959. The Council also approved an outline which had been suggested by its Committee on Alcoholism as a guide for medical schools, which already are integrating alcoholism as a subject in prevailing curriculums.

Medical Students and Religion

How do tomorrow's physicians relate their religious attitudes to the study of medicine?

In an effort to find out, 208 students enrolled at the Southwestern Medical School in Dallas were asked recently to reply to a multiple-choice questionnaire. These are some sample findings:

"Do you consider yourself a religious person?" No, said 21 students, but 129 considered themselves to be at least "slightly religious."

"What about the study of medicine—is it making you more religious?" Ninety-one thought it was, 88 said it was not, and 21 thought it was making them "less religious."

In assessing the influence of religious considerations on their desire to enter the medical profession, 117 concluded there had been no such consideration, while 75 thought that there had. Nine out of 10 thought a religious nature would add to the effectiveness of a skilled medical practitioner.

Asked, "If an indicated medical procedure conflicted with your patient's religious beliefs, would you still urge the procedure?" 140 replied affirmatively, although when asked to comment, most said they would attempt to explain the necessity, and try to obtain consent.

Results of the survey were published last February in the *New Physician* by two medical students, James A. Hall, and Daniel Gruver. The authors reported that comments accompanying the returned questionnaires emphasized that these medical students, while generally considering themselves religious, disliked casting their beliefs in conventional forms. "My belief now boils down to the Superior Being, brotherhood, and compassion," one said. Only 27% said they believed in all the creeds and dogmas of their religion (see Medicine at Work, THE JOURNAL, April 13, 1957).

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DÉBRIDEMENT IS PARAMOUNT

GUEST EDITORIAL

John O. Goodsell, M.D.

COMPOUND fractures are emergencies. They require treatment promptly, for time is of the essence. Débridement is the keystone of the treatment.

The ideal treatment of the compound fracture devolves logically in a well-established chronological order. This begins with adequate first aid at the site of the accident, essentially splinting. Rapid, but safe, transportation to the place of definitive treatment ensues. Appropriate assessment of the victim's general well-being and measures for assuring its stability begin with first aid and are intensified on arrival of the patient in the emergency room. Local injuries are quickly but carefully evaluated. They are then treated and the all-important débridement performed in the case of compound fracture. Finally immobilization of the fracture is accomplished by whichever of many possible methods is best suited.

Why is débridement paramount? This can best be answered by observing that, while all infected wounds are at least unfortunate, infected fractures are catastrophes. No other single facet in the care of a compound fracture is so important in the prevention of infection as débridement. This principle has been irrevocably established for decades, but must frequently be "rediscovered."

Eaton [1] said in reference to débridement of compound fractures in World War II: "In spite of the experience gained in World War I, this lesson had to be learned all over again in the early part of this war." The literature of World War II is replete with references to the imperativeness of débridement. Few improvements in humanity result from war. It would be a pity if the costly lesson in proper débridement of compound fractures were not indelibly stamped in the consciousness of all who assume the treatment of trauma.

How débridement deters infection is made clear by Watson-Jones in his textbook "Fractures and Joint Injuries." [2] Débridement is the proper toilet of a contaminated wound, including removal of all tissue which is dead. Germs thrive in necrotic tissues which form a barrier between them and the body's natural defenses. Healthy vascular tissue can, given proper opportunity, deal successfully with germs.

Débridement should be performed as soon as the patient's condition will allow it. There is a "golden period" of six to eight hours from the time of injury when the wound may be considered merely contaminated rather than infected. After that the wound must be treated in anticipation that infection has supervened, and débridement is of progressively less benefit. By that time drainage and compresses may be more appropriate, alone or with débridement.

Some situations delay immediate débridement. Other injuries most often force temporary postponement. However usually such factors can be improved rapidly enough to stay within the "golden period." Shock from blood loss is the most common deterrent. It behooves the surgeon always to treat shock as vigorously as possible, first to preserve life and next to preserve the limb by early débridement. To save the patient's life may be heroic, but the surgeon's fatigue must be ignored until the fracture has also received its adequate treatment. The reward for such tenacity is great: avoidance of prolonged, sometimes seemingly endless, treatment of chronic osteomyelitis.

Some injuries, e. g., to the brain, lungs, liver, or spleen, may not permit débridement at the ideal time. All injuries to the head, chest, and abdomen do not automatically prevent proceeding, however. We must exert energy here also to distinguish the type present. Conceivably the presence of disease unrelated to the accident may interfere, e. g., diabetes or heart disease. Again we must distinguish when these things might reasonably be ignored or improved sufficiently to deal with the local injury.

Orthopedic surgeon, Saginaw, Mich.

The technique of proper débridement is dealt with in detail in various textbooks. The principle is excision and removal of all foreign material. This includes dead tissue, because it too is foreign. Skin removal should be minimal; usually a 2-or-3-mm. excision of the wound margin suffices. All dead fat, fascia, and muscle must go; left behind they can only liquefy and become a culture medium. Vessels and nerves should be identified and protected. Bone should not be removed unless totally detached from soft tissue. Copious irrigation with sodium chloride solution is invaluable in removing small bits of debris.

The use of internal fixation is somewhat controversial and in the opinions of some writers never applicable in compound fractures. Properly selected, nevertheless, internal metal appliances have been used in many such cases by many surgeons without significant complications.

To close or not to close is also a question. Opinions here vary from never to not over eight hours after injury, and even longer. Individualization is needed here too, with such things as amount and type of contamination, amount of skin remaining, and time after injury being important. There is fairly general agreement that if closure is elected, it should be of skin only, never fascia.

Antibiotics undoubtedly contribute to the success of treatment of compound fractures. It has been written again and again that the availability of these drugs does not alter fundamental surgical principles. Débridement of compound fractures is fundamental and cannot be eliminated nor even minimized by the use of antibiotics. A review of the World War II literature on compound fracture reveals a widespread wave of enthusiasm for placing sulfonamide powder in these wounds. One can scarcely doubt in the face of practically universal approbation that this helped. But this probably coincided with progressively better débridement. The ranks of the sulfonamide sprinklers are certainly smaller than they were.

To summarize, in the treatment of compound fractures débridement is paramount. It should be done as soon as possible, with special effort to do it less than eight hours after injury. Rapid treatment of shock and other delaying conditions should be carried out. The availability of antibiotics does not decrease the necessity of débridement, nor even the extent of débridement. Rapid, energetic treatment of a compound fracture is certainly rewarding.

Some of the ideas expressed herein are based on the observations of the late Dr. Sylvester J. O'Connor.

1. Eaton, G. O.: Overseas Treatment of Compound Fractures of Long Bones, J. Bone & Joint Surg. **28**:434-439 (July) 1946.
2. Watson-Jones, R.: Fractures and Joint Injuries, ed. 4, Baltimore, Williams & Wilkins Company, 1952, vol. 1.

MENTAL HEALTH WEEK, APRIL 26-MAY 2

The observation of Mental Health Week once again reminds us of one of the largest public health problems confronting the United States—mental illness. While the exact incidence of emotional disorders is not known, the rejection and discharge figures for psychiatric disorders in the armed forces in World War II, the current rates of hospitalization for the mentally ill and retarded, and the problems of alcoholism, narcotic addiction, juvenile delinquency, and broken marriages give some indication of how large the problem is. Physicians in general practice and internal medicine repeatedly have estimated that one-third to one-half of the patients they see have disorders which are primarily psychogenic or which are complicated by emotional factors.

The level of care of many patients in mental institutions is indeed low. It is reported that in some mental institutions with over 1,000 patients there is but one psychiatrist to provide treatment. The disproportion between the level of care given the hospitalized mentally ill patient and that given the patient hospitalized for a physical illness is one that medicine must strive to eliminate.

More research on the causes of mental and emotional illness and on more economical and more effective methods of treatment is urgently needed. What is known about prevention should be implemented as soon as possible and over as broad an area as possible. Physicians should be as capable of diagnosing mental illness as they are of treating uncomplicated medical or surgical illness. If the training of the physician does not achieve this, his training needs to be reexamined and changed. The training of the psychiatrist bears inspection also. He has tended to isolate himself from his medical colleagues and thereby to forego the advantages that collaboration and cooperation provide.

Now that great strides have been made in the prevention and treatment of infectious diseases, perhaps we can give more attention to mental illness and solve this serious problem, whether by biochemical, physiological, or psychosocial means.

JOURNAL INDEX

The index to volume 169 of THE JOURNAL will appear in the May 9, 1959, issue. Those who wish extra copies of the index may receive them, without charge, on request to the Order Department, American Medical Association, 535 N. Dearborn St., Chicago 10.

COUNCIL ON MEDICAL SERVICE

CHRONIC ILLNESS SERVICE CENTER OF SAN FRANCISCO

The Chronic Illness Service Center of San Francisco was established in October, 1950, as the result of two years of study and planning by a special subcommittee of the Social Planning Committee of the Community Chest. This subcommittee, after reviewing the problems of the chronically ill both nationally and in the San Francisco area, recommended a two-year demonstration program to test the feasibility and value of a central information-gathering, coordinating, and referral agency for the city's chronically ill. Originally supported by foundation funds and later by the United Community Fund in 1955 the Chronic Illness Service Center of San Francisco began operations directed toward the following objectives: (1) to promote the development of a coordinated community-wide program for adequate care of the chronically ill; (2) to assemble and make available information regarding the unmet needs and problems of chronic illness; (3) to assemble, study, and make available information on existing community facilities and resources for the chronically ill; (4) to stimulate public interest and understanding of the problems of chronic illness and its prevention and control; and (5) to assist organizations in planning facilities and programs for the chronically ill.

Organization and Operation

The original staff of the service center, which was housed rent-free in the Community Chest Building, consisted of a director and an office secretary. A medical social worker was added to the staff in August, 1952. The center functions under the guidance of a 21-man board of directors, who are familiar with the community and its resources and specifically concerned with the problems of chronic illness. Additional consultation and guidance is provided by a technical advisory committee, representing various professional groups with a knowledge of the key fields related to chronic illness.

The director's duties, in addition to over-all supervision of the administrative and program activities of the center, include liaison with the board of directors and the technical advisory committee, interpreting agency policies to the community and professional groups, consultation with individuals and groups planning resources for the chronically ill, preparing reports on the individual and community problems of long-term illness, and the planning of meetings and educational activities for specific groups.

The medical social worker is responsible for the day-to-day operation of the information, counseling, and referral service. Consultation with and referral of patients or other persons seeking suitable facilities for care is her continuing responsibility. She secures and maintains current information on the various facilities and resources for long-term care in the community and makes this information available to persons and organizations who need assistance in planning care for chronically ill or disabled patients. She also acts as a consultant to the operators of nursing homes and other long-term care facilities on administrative policies, needs of the long-term patient, and ways of improving care.

The office secretary, under direction, is responsible for the management of the office and the clerical-administrative details inherent in the center's operation, maintaining files, records and correspondence, and preparing monthly statistical reports. She also acts as receptionist and telephone operator.

The center occupies about 450 sq. ft. in the Community Chest Building and is divided into three offices. Inasmuch as the majority of referrals and information can be given by telephone and all office interviews are by appointment, the lack of space has not presented a serious problem as yet. Files maintained in the office include detailed data on proprietary nursing and boarding homes and other facilities and services currently operating in the community (this information is usually obtained by a questionnaire followed by a visit to the facility) and complete individual case records for all persons requesting services, which are divided according to new requests, recall cases, and persons seeking information not related to a specific patient.

Services to Patients

From the beginning, it was felt that emphasis should be placed on counseling, guidance, and referral services to individual patients and others seeking information and that in this way insight would be gained into the over-all planning, coordinating, and educational services needed in the community as a whole. In accordance with this policy, services were made easily available and individuals requesting help were accepted without being

This is part of a series of articles, prepared by the Council on Medical Service, on chronic illness information centers in various parts of the United States.

obliged to undergo detailed investigative procedures. However, there was no emphasis on case-finding activities nor on publicity concerning the center's existence. An announcement letter was mailed to other agencies notifying them of the center's availability, and two articles describing the center were published in the San Francisco Medical Society Bulletin. No organized follow-up is made

TABLE 1.—*Persons Served in 1954, 1955, and 1956*

Year	Patients, No.		
	New*	Recall†	Other, No.‡
1954	788	360	185
1955	1,087	641	276
1956	1,329	902	208

* Patients known to center for first time.
† Patients who have received previous service from center.
‡ Requests for service not related to specific patient.

of patients to see whether the solution or the placement suggested has been completely satisfactory in each case.

From its inception in October, 1950, to the end of 1956, the center provided services to 7,037 individual patients or other persons. During the calendar year 1955, 1,728 patients sought help at the center, an increase of 51% over 1954 (641 of these patients had received service previously from the

TABLE 2.—*Source of Requests for Patient Services*

Source	New Patients, No.		Recalls, No.
Patients, relatives, and friends		721	709
Hospitals and welfare agencies			
Hospitals	327		
Other health agencies	47		
Family agencies	43		
Information services	17		
Relief agencies	5		
Miscellaneous	22		
Total		461	129
Other			
Physicians	54		
Nursing and boarding home operators	33		
Unions	12		
Press	9		
Nurses	7		
Employers	6		
Attorneys	5		
Trustees, guardians	4		
Clergy	4		
Insurance companies	3		
Landlords	3		
Fraternal & veterans organizations	3		
Professional associations	2		
Foundations	2		
Total		147	64
Grand total		1,329	902

center; the remainder were new referrals). Table 1 shows the number of services requested during the years 1954, 1955, and 1956, divided according to new and recall cases and requests not related to an individual patient. Table 2 shows the referral sources for both new and recall patients during the year 1956.

Of the 1,329 new patients referred to the center in 1956, almost 60% were between the ages of 65 and 85. The average patient age has been steadily rising since the center's inception and was 71.6 years in 1956. Almost twice as many women as men are referred to the center. About 63% of the patients were widowed or single, 36% lived alone, and 26% lived with relatives. An increasing percentage of ambulatory patients are being referred to the center. During the early experience one-half of the patients referred were bedfast, while in 1956 this percentage has shrunk to ⅓ of total referrals.

Factors which might explain this trend have been an increased bed capacity in the voluntary chronic disease hospitals, the setting aside of 20 new long-term beds in two general hospitals in the city, and, on a broader scale, a growing recognition on the

TABLE 3.—*Characteristics of New Patients Referred to Center in 1956*

	Patients, No.
Sex	
Male	471
Female	858
Age	
<25	19
25-44	68
45-64	233
>64	970
Not recorded	39
Average age	71.6
Marital status	
Married	317
Single	190
Widowed	646
Divorced or separated	79
Unknown	97
Living arrangements	
Alone	487
With spouse	294
With relatives	352
With friends	32
Boarding or nursing home	57
Hospital	29
Other institutions	30
Unknown	48
Degree of disability	
Bed	435
Ambulatory	682
Semiambulatory	184
Unknown	28
Main source of income or support	
Spouse	85
Other relatives and/or friends	156
Old Age Assistance only	46
Old Age Assistance supplemented by relatives, OASI, etc.	203
Other public welfare	22
Pensions (retirement, veterans, etc.)	176
OASI, OASI & savings, relatives, friends	171
Business, employment, rentals	145
Savings only	128
Capital assets, convertible property	48
Disability and unemployment insurance	15
No income	14
Source unknown	120

part of agencies and individuals that bed care is not always the best answer to needs of the long-term patient. Table 3 shows the characteristics of patients newly referred to the center during 1956 by age, degree of disability, living arrangements, financial status, and other factors.

Needs of Patients

During 1956, requests for 24-hour nursing or supervisory care accounted for a little over 60% of all needs for service among newly referred patients. The next most frequent requests were for counseling and for some type of housekeeper-attendant service. Other requests were for general information on facilities and resources for long-term care, information on a specific facility or resource, or for consultation. Table 4 shows the nature of requests for service received by the center during 1956, divided by new and recall patients.

Problems and Developments

In answering these requests and in attempting to find and effectively utilize existing services and facilities, the center has brought into clearer focus some of the more pressing problems in meeting chronic illness needs in San Francisco.

One of the major problems encountered by the center has been the inability of many patients to pay for the type of care they need. The trouble lies not so much in a shortage of good nursing homes, boarding homes, and other long-term facilities as in the fact that the rates at these better facilities are too often beyond the patient's ability to pay. This has been true both for patients seeking 24-hour nursing care and for those seeking domiciliary or boarding home facilities.

The center has also found that there is not enough provision for rehabilitation in the various

TABLE 4.—*Nature of Patient Requests, 1956*

	New Cases	Recalls	Total
Nursing home, boarding home, institution	819	228	1,047
Housekeeper, attendant, etc.	142	51	193
Information re facilities and resources			
Sheltered or home employment	13		
Financial assistance	11		
Wheel chairs, hospital beds, etc.	11		
Rehabilitation services	7		
Medical and dental care	10		
Free or cheaper medicine	11		
Housing	12		
Transportation to clinic	10		
Recreation & companionship	8		
Day care (custodial)	3		
Restaurants serving special diets	2		
Misc. procedures, legal advice, camp, etc.	12		
Total	110	42	152
Information on specific facility	56	51	107
Consultation	52	54	106
Counseling	150	107	257
Additional information only*	...	369	369
Total	1,329	902	2,231

* Applies to recalls only.

long-term facilities. In the proprietary nursing and boarding homes the emphasis given to rehabilitation varies widely and reflects the philosophy of the operator, his idea of the rehabilitative potential of the elderly chronically ill person, and the economic effect such services will have on his own business. Consistent physical and occupational therapy and diversional programs are for the most part lacking in proprietary facilities for long-term care, where the lack of adequate staff and the cost of such services prohibit organized efforts.

Considerable overlapping and duplication of function exists among the various chronic disease facilities and services. No facilities especially adapted to the needs of the younger chronically ill adult presently exist. There are limited subsidized convalescent resources for women and none for men in the city.

Another problem has been obtaining efficient, reliable homemaker-attendant services. Previous attempts at homemaker service for the city's chronically ill have been sporadic and temporary in nature, and there is no permanent, established program of this type at the present. (A limited demonstration Homemaker Service primarily for chronically ill and aged persons was established on May 1, 1957.) As a result, the cost of obtaining reliable full-time attendant service has been prohibitive for many families, and the type of consistent, dependable part-time help which would make secure family planning possible has been equally hard to find.

Another need that has become increasingly clear as operations progressed is for more counseling specifically geared to the chronically ill, embracing the many problems that accompany long-term sickness or disability, such as dwindling finances, family attitudes, living arrangements, and the psychological impact of long-term dependency. The center reports that there has not been too much change in the types of patients or problems since its inception, but there has been encouraging progress in the community's thinking about chronic illness. Some change is evident in the "hopeless" pattern of patient management and more emphasis is being placed on rehabilitation.

Services to the Community

As the result of its contacts with patients and its work and findings in the community, the center has been able to implement and participate in broader community planning for service to the chronically ill. In addition to maintaining complete information on the services, rates, and facilities in commercial nursing and boarding homes in the San Francisco area, the center has sponsored two institutes for nursing and boarding home operators. The second in a series of five meetings, held in the fall of 1955 by popular request of the operators, featured demonstrations and discussion of new techniques in patient management. The center also continues to provide consultation on standards of care and operating practice to operators on a day-to-day basis, and to sponsor a closer working relationship between nursing and boarding homes and hospitals, physicians, and other related organizations.

Partly as a result of the center's recommendations, and with its informal participation, a home-care plan for the chronically ill of San Francisco is in operation at the Mount Zion Hospital, and the Center has continued to stimulate the formation of other such programs, particularly under public auspices. Finally, the center continues to bring together representatives of the voluntary health organizations concerned with long-term illness and has provided these organizations with a basis for joint planning and action.

MEDICINE AND THE LAW

AVERTING PROFESSIONAL LIABILITY ACTION

Samuel Polsky, Philadelphia

There are three fallacious attitudes common among doctors that lead to professional liability action. First is the belief that diagnostic and surgical skills are the chief safeguard against a malpractice action; second, that being a good Samaritan is good medicine; and third, that a just cause is a good cause. These virtues may win lawsuits, but they seldom prevent them. Being a defendant in a malpractice action is never a happy experience, no matter how sweeping the ultimate victory may be. Before I am branded as a devil's advocate or dismissed as a complete legal cynic, let me still some of the free-floating anxiety that the word "malpractice" seems to arouse in physicians by stating that the bulk of malpractice actions in the United States are readily preventable.

For proof of that statement one need only look at the medical quack. Of the tens of thousands of malpractice actions that fill our law reports, how many are directed against quacks? Disconcertingly few. What accounts for this peculiar state of affairs? It cannot be explained away by saying that there are relatively few medical quacks left; that may be true in some parts of the country but false in others. The efforts of medical societies and the work of the United States postal authorities, the Pure Food and Drug Administration, and other agencies testify to a continuing fight against new medical quacks as fast as the old ones are put out of business. But almost without exception public or quasi-public agencies such as the medical societies conduct the fight. Rarely does the individual victim bring a malpractice suit against the medical quack.

The reason for this is not difficult to find. The only skill that the quack has to sell is the ability to establish and maintain rapport with another person. Medical skill is completely absent, yet so are malpractice suits.

As a case in point, some years ago in Pennsylvania a self-styled plastic surgeon set up in business. He straightened noses by injection of wax. Unfortunately, on hot July days, his patients found their noses melting. They did not run to their lawyers, however. There was no need to; day or night their "doctor" was available with sympathy, consideration, and understanding and ultimately, of course, with more artistry in wax. The medical society fought him through one court after another, but not even this publicity was enough to break his immunity from malpractice attacks by his victims.

His single stock in trade was an excellent bedside manner, reflected in a continuing high degree of rapport with his patients. This was enough to prevent malpractice actions despite his complete absence of formal medical training. This is not to suggest that medical schools establish a clinical professorship in medical quackery to teach the skills of rapport. All too often, however, this skill tends to be dwarfed by other professional skills. Perhaps, also, the association of this one skill with the quack leads to its depreciation in the hands of the reputable physician. To some extent the demands of a busy practice accomplish the same result, and specialization exacts somewhat the same toll.

I suggest that the modern surgeon exhibits little warmth in establishing the physician-patient relationship. May I also suggest that it is this factor, rather than the risks inherent in surgery, which so often makes the surgeon the target of malpractice litigation? The risks of surgery are not to be denied, of course, but that very fact conditions the patient to accept an untoward result with greater tolerance. If I were required to state a first principle of preventive law in malpractice actions it would be that diagnostic and surgical skills are far less important than is skill in establishing a friendly physician-patient relationship. In achieving this, it seems to me that the ability to listen and simply being available to the patient are all-important.

There is a difference, of course, between being a good doctor and being a good Samaritan. The second legal pitfall leading to a malpractice action lies precisely here. The physician should exercise his bent for doing good in the highest tradition of his profession by giving of his services as freely as he likes or is able; he enters dangerous ground only when he stops practicing professional medicine in order to practice amateur economics. The warning signs and admonitory symptoms are plain. They may be summed up as hypersensitivity of the ego accompanied by subacute melancholia and manifested by Hamlet-like musings along these lines: Can the patient really afford a roentgenogram?

Associate Professor, Temple University Law School, and Director, Philadelphia Medico-Legal Institute.

Read before the forum The Doctor and His Practice, presented by the Wm. S. Merrell Company and the Erie (N. Y.) County Medical Society, Buffalo, Nov. 6, 1958.

Will he think I am just trying to squeeze another visit out of him if I ask him to come back for a follow-up examination? Is it an admission of failure if I suggest a consultation? The variations are infinite, but the basic syndrome remains one of medical insecurity largely induced by economics. It results in indecision and lack of medical action and is defensively rationalized as concern for the patient. The diagnosis is cardiovascular good-Samaritanism.

The prognosis is guarded, with possible legal complications which often take the form of a malpractice action based on failure to check routine safeguards, failure to follow up, failure to obtain consultation, failure to refer the case for observation or specialized treatment, failure to advise the patient of the risks of inaction, and sometimes even failure to tell the patient just how ill he really is.

If, therefore, I had to state a second principle of malpractice prevention it would be to diagnose and cure yourself of good Samaritan palpitations unless you would like to recite and explain your soliloquies from the witness stand to a patient you have abandoned medically. This is not overstating the case, for opposing counsel and the court will remind you (and the audience of 12 jurors) that good intentions are not the equivalent of good medical practice.

The third fallacious attitude that I would invite you to consider is that a just cause is a sound course to pursue. The history of many malpractice actions begins with the righteous indignation of a physician whose fees have not been paid by a patient who can afford to pay them. After a course of polite and then pointed reminders have failed to elicit response the matter is turned over to a commercial collection agency, whose insistence reminds the patient so often of the doctor that in time he develops at least a mild obsessive-compulsive neurosis. The obsession takes the form that the doctor is not, and never was, any good. In time this includes the view that the physician lacks skill as well as being a money-mad pirate without principles or scruples. The compulsion takes the form of a desire to talk about the persecution to all who will listen. The patient's family and friends assure him that he is right and that he looked, talked, and felt far worse after the doctor's shameful treatment and incompetent ministrations. Soon the patient thoroughly believes all this, and the obsession has become a delusion with strong paranoid coloring. By the time he sees his first lawyer he is thirsting for primitive retaliation. After being told he has no case, he broods over the deficiencies in his cause of action and eventually comes to discover the missing elements. The next lawyer he sees has a case that spells legal indignation over medical malpractice, and suit is started. Or the physician may sue for his bill and by a similar, perhaps more rapid, process find himself faced not only with defense of malpractice but a counterclaim or countersuit for damages.

This history can be altered by a rather simple bit of preventive law: A just cause must not be hurried on its course. The statute of limitations for malpractice actions is far shorter than the limitation period for debts or contracts. Usually the malpractice action must be brought within one or two years of the time of alleged injury, while the debt or fee is not outlawed for some six or seven years from the time when it was contracted. Patience, in waiting until the malpractice period of limitations has run out, will not only restrain unwarranted suits of a purely retributive nature but may even result in peaceful, perhaps piecemeal, payment of the fee.

As a final item of preventive law I urge that writing be retrieved from among the lost arts of medicine. If a patient refuses to follow advice, write and either tell him to get another doctor within a reasonable time or inform him that you cannot and will not be responsible for his treatment if he refuses to take your advice. Also, if you have a seriously ill patient who requires frequent or constant care or may require emergency care while you are away on vacation or on a trip, do not rely on your answering service to do your referrals under such circumstances. A note to the patient, telling him who will be covering your practice in your absence, and a note to the other physician, describing the case and course of treatment, not only will avert malpractice actions but also may prevent serious harm for the patient. And when an experimental or risky procedure is to be tried do not rely on just the hospital release form and the patient's oral consent. His consent, after explanation of the risks, should be obtained in writing. It need hardly be added that it is wise to keep copies of these letters in your own records. The psychological value of such written communications in dissuading a patient from initiating litigation is probably greater than their probative value in court; but that, after all, is simply another way of saying that the measure is good preventive law.

While many (perhaps most) malpractice suits can be prevented, some will always remain. No profession is wholly immune from carelessness or ignorance. I urge in conclusion that, when such a situation arises in your medical community, it is not preventive law to refuse to make your honest opinion known. Refusal to testify under such circumstances involves something more important than personal convenience or lack of fortitude. It defeats justice, and degrades both law and medicine from their high estate as professions worthy of public respect.

MEDICAL NEWS

ALABAMA

Dr. Spies Honored.—For the first time, an "International Boss of the Year" was selected by The National Secretaries Association (International). The honor went to Dr. Tom Spies, of Birmingham, director of the Nutrition Clinic at Hillman Hospital and chairman, department of nutrition and metabolism, Northwestern University Medical School, Chicago. The award was presented to Dr. Spies during Secretaries Week, on Secretaries Day, Wednesday, April 22. Dr. Spies' background was submitted for the "International Boss of the Year" award by his secretary, Miss Margaret Owen, of the Birmingham Chapter, National Secretaries Association.

Clinical Meeting Held at the Tuskegee Institute.—The 47th annual meeting of the John A. Andrew Clinical Society was held April 12-17 at the John A. Andrew Memorial Hospital, Tuskegee Institute, under the presidency of Dr. J. D. Merida, Cleveland. Over 30 papers were presented, including the Charles R. Drew Memorial Lecture given by Dr. Hollon W. Farr. A Medical-Dental Lecture, "Cancer of the Mouth," was also presented by Dr. Farr. Panel discussions were held on "Drug Therapy of Hypertension" and "The Use of Tranquilizing Drugs." A clinical pathological conference, movie sessions, and a clinical case presentation on "Sarcoidosis—Hodgkin's Disease" were held. At the banquet April 13, Commissioner Elmer A. Carter, State Commission Against Discrimination, New York City, presented an address.

CALIFORNIA

Los Angeles Doctors' Symphony Orchestra.—This organization held its annual elections recently and the following are new officers: Dr. Lester M. Morrison, president; Dr. Jesse Younger, vice-president; William Curry, D.D.S., secretary; Dr. John Brody, treasurer; Mrs. John Brody, librarian. The Los Angeles Doctors' Symphony Orchestra is a five-year-old, nonprofit organization sponsored by the Los Angeles County Medical Association which holds weekly rehearsals and gives two symphonic concerts yearly for charitable purposes. The orchestra consists of 80 musicians, composed of physicians, dentists, and allied professionals "who have banded together in a merger of medicine and music for mutual enjoyment." A concert held Jan. 21 in Philharmonic Auditorium was given for the use of the City of Hope with Anna Maria Alberghetti as guest artist. The next spring concert is scheduled for June 6.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

DISTRICT OF COLUMBIA

Dr. Bayne–Jones to Receive Award.—The Board of Directors of the Passano Foundation announce that Dr. Stanhope Bayne–Jones has been selected as the recipient of the $5,000 Passano Award for 1959. On Wednesday evening, June 10, during the convention of the American Medical Association in Atlantic City, a reception and dinner will be held at the Traymore Hotel to honor Dr. Bayne–Jones. Dr. Louis M. Orr, incoming President of the A. M. A., will speak on Dr. Bayne–Jones' contribution to the practice of medicine. Joseph C. Hinsey, Ph.D., director, New York Hospital–Cornell Medical Center, New York City, will present Dr. Bayne–Jones' contribution to medical education. This year's award is presented to Dr. Bayne–Jones "in recognition of a long and extraordinary service to science and medicine as educator and administrator in tasks of the highest importance, in all of which he has served with distinction and faithfulness." His most recent post was that of chairman of the Secretary's Consultants on Medical Research and Education, Department of Health, Education, and Welfare. The Passano Foundation was formed late in 1943, having as its sole purpose the encouragement of medical science and research, particularly that having a clinical application. It is sustained by annual contributions from The Williams & Wilkins Company, publishers of medical and scientific books.

GEORGIA

Annual Session in Augusta.—The 105th annual session of the Medical Association of Georgia will be held at the Bon Air Hotel, Augusta, May 17-20. The House of Delegates will convene May 17, 5 p. m., and reconvene May 20, 9 a. m. Dr. Paul Dudley White, Boston, will present the Association Abner W. Calhoun Lectureship, "Cardiovascular Disease in the Light of the Long Follow-Up," at noon, May 19. Papers by guest speakers will include the following:

Fire and Exposure Hazards in Hospitals and Their Control, Dr. George J. Thomas, Pittsburgh.

The Inadequacies of Routine Bleeding and Clotting Time Determination, Dr. Louis K. Diamond, Boston.

The Radiologist and the Film Processing Problem, Mr. William H. Ramey, Rochester, N. Y.

Clinicopathic Meaning the Nephrotic Syndrome, Dr. Arthur C. Allen, Miami.

The Roentgen Diagnosis of Lesions of the Spine, Dr. John Arthur Evans, New York City.

Pediatric Anesthesiology for Head and Neck Surgery, Dr. M. Digby Leigh, Los Angeles.

Anticoagulants: "How Come, How Good, and How Now?", Dr. Edgar A. Hines Jr., Rochester, Minn.

The Early Management of the Burn Patient, Dr. Curtis P. Artz, Jackson, Miss.

Dr. Louis M. Orr, Orlando, Fla., President-Elect, American Medical Association, will present an address on "Time for Medicine's Re-Entry" at the general session, May 18, 11:50 a. m. Social events will include alumni dinners. Scientific and clinical exhibits are planned. President of the association is Dr. Lee Howard Sr., Savannah. For information, write Mr. M. D. Krueger, 875 W. Peachtree St., N. E., Atlanta, Ga., Executive Secretary.

IDAHO

Fifty-Year Physicians Honored.—"Fifty-Year Certificates" were mailed in December to 27 Idaho physicians who have been in practice for a half-century or more. A personal letter from Dr. Hoyt B. Woolley, Idaho Falls, who conceived the idea of honoring these physicians, accompanied each of the certificates. Receiving the honors were Ethel P. Westwood, William F. Tyler, and Floyd G. Wendle, Sandpoint; Charles R. Hudgel, Fred A. Pittenger, Thomas N. Braxtan, Samuel W. Forney, and August L. Heine, Boise; George O. A. Kellogg, Nampa; Harry H. King, Montpelier; Charles J. Kinsolving, St. Maries; Dailey C. Ray, Francis S. Miller, and Minnie F. Howard, Pocatello; Robert H. Wright and Earl W. Fox, Hailey; Clifford M. Cline and Arthur R. Soderquist, Idaho Falls; Herbert C. Mowery, Wallace; John H. Cromwell, Gooding; William M. Mitchell, Parma; Harry W. Wentworth, Lewiston; Vonando G. Logan, American Falls; Edward L. Hargis, Ashton; Joseph Fremstad, El Paso, Texas; Charles W. Dill, Shoshone; and Grover C. Sherrard, Bonners Ferry.

ILLINOIS

Plan Alumni Seminar.—The Medical Alumni Association of the University of Illinois has scheduled its fourth semiannual medical seminar for Monday, May 18, preceding the Illinois State Medical Society meeting. The annual banquet will be held at the Illini Union, 715 S. Wood St., following the day's program of seminars, lectures, and clinics. Officers for 1959-60 will be elected following the banquet. Guest speaker will be Gordon N. Ray, Ph.D., vice-president and provost of the University of Illinois. The staff of the university's College of Medicine will provide the clinics and lectures and will conduct the question-and-answer sessions. The seminar is co-sponsored by the College of Medicine and Medical Alumni Association. All alumni and their guests are invited. For information write Dr. Louis R. Limarzi, associate professor of medicine, Room 216, University of Illinois Research and Educational Hospitals, 840 S. Wood St., Chicago 12.

Quincy Physicians Assist New Educational Society.—On March 20 there was born in Quincy a new, nonprofit, international, educational organization called the "Society for Academic Achievement in Secondary Schools." The principal purpose of the new society is "to promote, popularize, and reward high academic scholarship achievement in the secondary schools of the United States and Canada; to guide and motivate superior and talented students to seek a college education." The society is an outgrowth of the Quincy Major Learning Program, dedicated to the guidance and motivation of the students of Quincy and Adams County to seek college education, initiated and sponsored by the Swanberg Kiwanis Foundation and the Kiwanis Club of Quincy in 1956. Community organizations, not affiliated with the secondary schools but approved by the school administrators, are being urged to sponsor the society in the secondary schools. Academic scholarship achievement awards will be given in accordance with regulations established by the society, with the secondary school principal, or his representative, responsible for the faithful observance of the regulations. Each student award recipient becomes an award member of the society for life. The criterion for award membership is competitive high scholarship achievement, especially in academic subjects. The incorporators of the society have adopted a constitution, made application for Illinois incorporation as a nonprofit organization, and elected the first board of trustees. Among the seven incorporators are Dr. Elbert Newton DuPuy, Quincy, counselor, Illinois State Medical Society, and Dr. Harold Swanberg, Quincy, secretary, American Medical Writers' Association and Mississippi Valley Medical Society. The society is being sponsored by the Medical Foundation of the Adams County Medical Society, the Kiwanis Foundation of the Kiwanis Club of Quincy, the Collegiate Educational Fund of the American Medical Writers' Association, and the Mississippi Valley Medical Society. The sponsors are nonprofit organizations, which have education as one of their objectives and each has given a grant to get the new society launched.

Chicago

Work Simplification Class for Heart Patients.—"Rehabilitation for the Homemaker Convalescing from Heart Disease," a work simplification class providing help for women patients who must take it easy, is planned by the Heart of the Home Committee, Chicago Heart Association. The first of the two planned series, held at the Museum of Science and Industry, began April 7, with classes held April 14,

21, and May 5; the second series will be held at Mary Thompson Hospital, 140 N. Ashland, May 7, 14, 21, 28, at 2-3 p. m. For reservations, write Margaret H. Brookes, Ph.D., 69 W. Washington St. (FI. 6-4675).

Personal.—Dr. Manuel E. Lichtenstein has been elected chairman of the department of surgery, Cook County Hospital. He was also elected to membership on the board of trustees, Cook County Graduate School of Medicine.——Dr. Piero P. Foa, professor of physiology and pharmacology, Chicago Medical School, will address a series of seminars at the Universities of Copenhagen, Helsinki, Edinburgh, and Milan, during April and May. He will also address an International Symposium on the Relationship of Sulfur to Diabetes at the University of Bologna.

LOUISIANA

Meeting of State Society in New Orleans.—Physicians from all 64 Louisiana parishes will meet in New Orleans May 4-6 for the 79th annual meeting of the Louisiana State Medical Society. Dr. Gunnar Gundersen, LaCrosse, Wis., President of the American Medical Association, will address the opening meeting May 4. Dr. William C. Rivenbark will be general arrangements chairman for the meeting, and Dr. Arthur D. Long Jr., of Baton Rouge, president of the Louisiana State Medical Society, will preside. Among the out-of-state guest speakers who will address scientific sessions are Dr. Edward S. Judd Jr., Rochester, Minn.; Dr. Samuel Buford Word, Birmingham, Ala.; Dr. David G. Decker, Rochester, Minn.; Dr. E. Crampton Harris Jr., Mobile, Ala.; Dr. Theodore C. Panos, chairman, department of pediatrics, University of Arkansas Medical School, Little Rock; and Elaine L. Updyke, Sc.D., Atlanta, Ga. Louisiana State Medical Society members completing 50 years of medical practice will be given special recognition at the opening meeting and be admitted to the "50-Year Doctors Club." A full schedule of scientific and business discussions will be conducted during the three-day meeting. All sessions will be held at the Roosevelt Hotel. For information, write the Louisiana State Medical Society, 1430 Tulane Ave., New Orleans.

MASSACHUSETTS

Medical History Lecture.—A new Horblit Lecture on the History of Science was inaugurated at Harvard University, Boston, by Herbert Butterfield, Master of Peterhouse and the professor of modern history at the University of Cambridge, England. "The History of Science and the Study of History" was Professor Butterfield's subject at 8 p. m., March 24, in the Allston Burr Lecture Hall. The new Horblit Lecture on the History of Science is supported by a fund established by Mark M. Horblit, of Newton Center, Harvard alumnus.

Personal.—Dr. W. Bradford Patterson, of Wellesley, has been appointed chief of professional services at Pondville State Hospital, Dr. Alfred L. Frechette, commissioner, Massachusetts Department of Public Health, has announced. Dr. Patterson will take over some of the duties of Dr. Ernest M. Daland, chief of staff, who has held this position since the hospital was established 32 years ago. Dr. Daland is planning to retire from Pondville and is turning over his duties gradually, but will continue as an executive member of the consulting staff.——Dr. Alfred Hollander, assistant professor of clinical dermatology, Boston University School of Medicine, presented "Diagnosis and Therapy in Dermatology" under the auspices of the World Medical Association before the Peruvian Medical Association in Lima, Peru, in March. He also spoke before the Peruvian Anatomico-pathological Society on "Newest Histopathological Findings in Dermatology."

Break Ground for Research Building.—Ground was broken March 2 for a 3-million-dollar medical research building for the Boston University School of Medicine. The site of the projected building is adjacent to the School of Medicine at 80 E. Concord St. and is bounded by East Concord and Stoughton streets and Harrison Avenue. President Harold C. Case, of Boston University, spoke during the informal ceremony. Invited guests included the university's four vice-presidents: J. Wendell Yeo, Ph.D., vice-president for student affairs; George A. Warmer, D.D., vice-president for university affairs; John A. Dunn, vice-president for university development; and Kurt M. Hertzfeld, vice-president for administrative affairs. Other invited participants were Dr. Chester S. Keefer, dean and director of the School of Medicine; Dr. Lamar Soutter, associate dean; Randall W. Weeks, executive secretary of the university's General Alumni Association; and Russell W. MacLaren, business manager of the university. The building, which will take 18 months to complete, will be devoted to research and clinical and basic medical sciences.

MICHIGAN

Service for Multiple Sclerosis Patients.—A consulting and diagnostic service for multiple sclerosis patients has been established at Wayne State University College of Medicine, Detroit, according to Dr. John S. Meyer, chairman, department of neurology. The service is sponsored by a $20,000 grant from the Michigan Chapter, National Multiple Sclerosis Society, a United Fund–Torch Drive Agency. Dr. John T. McHenry, associate professor of neurology, is director of the new Multiple Sclerosis Clinic. The department of neurology will provide neurological supervision and clinical evaluations for the referring physician. Research projects will be conducted by the department. Physical

therapy and related treatments will be administered at the Rehabilitation Institute of Metropolitan Detroit and other community rehabilitation agencies.

MINNESOTA

Dedicate Hall Honoring Dr. Diehl.—Dr. Harold S. Diehl, dean emeritus of the University of Minnesota College of Medical Sciences, Minneapolis, was honored recently at a medical symposium and dedication of a new medical school building named Diehl Hall. The $2,750,000 building will be completed next fall and will house the university's medical-biological library and medical research facilities. Dr. Diehl is now residing in New York City, where he is senior vice-president for research and medical affairs and deputy executive vice-president of the American Cancer Society.

Report on Decrease in Syphilis.—*Minnesota's Health*, a publication of the Minnesota Department of Health, has reported that four decades ago, venereal disease was a serious problem in Minnesota. Since then, congenital, neural, and infectious syphilis have been virtually eliminated and the number of reported resident cases of syphilis of all types cut from a peak of 4,300 and a morbidity rate of 173.3 per 100,000 population in 1925 to a record low of 137 reported cases and a provisional morbidity rate of 4.0 per 100,000 in 1958. In the first quarter of the latter year, the state's rate was 5.3, a figure lower than in 45 other states, according to U. S. Public Health Service statistics. Had the 1925 rates continued unabated, the state would have had an estimated 5,830 resident cases of syphilis in 1958, a figure more than 40 times the actual number. Most cases of the disease are now discovered and treated in time to prevent late active, cardiovascular, neural, and congenital syphilis. The "failure rate" (late active and congenital syphilis per 100,000 population) dropped from 32.0 in 1940 to 3.5 in 1952, the last year for which such statistics are available. Only 20 infectious cases were reported during 1958, and the state reportedly was the first in the nation to go through an entire year(1950) without a newborn luetic birth. An occasional congenital case involving older persons still appears, however. Sixty cases were reported in 1946, only four in 1958. Since 1953, there have been no reported resident cases involving the newborn. Deaths with syphilis as a major or contributory cause have been four to five times lower than rates of 25 years ago. During 1957, deaths in which syphilis was the major cause totaled 39.

NEBRASKA

Annual Session in Omaha.—The 91st annual session of the Nebraska State Medical Association will be held April 27-30, at the Hotel Paxton, Omaha, according to Dr. Fay Smith, Imperial, president of the association. Activities include scientific programs, meetings of the governing bodies, and "Sportsman's Day." The meeting will be officially opened April 28 with the presidential address, followed by the installation of the incoming president for 1959-1960, Dr. Ezra E. Koebbe, Columbus. Highlight of the meeting will be the annual banquet at which 29 physicians who have practiced medicine for 50 years will be honored guests and receive 50-year pins in recognition of their service to medicine. Principal speaker for the evening will be Dr. Russell B. Roth, Erie, Pa., who will discuss "A Humorous View of Medical Public Relations." "This meeting will provide all the necessary qualities to give the attending physician a concise and informative program of the latest progress in medicine," Dr. Smith said. Holding their 34th annual meeting will be the Woman's Auxiliary. For information write the Nebraska State Medical Association, 1315 Sharp Building, Lincoln, Neb.

NEW YORK

Chilean Visitor.—Dr. Rafael Darricarrete, director of the School of Medicine of the University of Concepcion in Chile is visiting the New York State University Upstate Medical Center, Syracuse, under a fellowship of the World Health Organization. Dr. Darricarrete is studying the organization of medical education in the United States. He was awarded the WHO fellowship to study plans and methods of teaching in medical schools, curriculum structure, group organization, school organization, and selection of students. Dr. Darricarrete is a professor of bacteriology at the University of Concepcion, and former head of the B. C. G. department, Bacteriological Institute of Concepcion.

New York City

Annual Lecture Given by Dr. Harvey.—The seventh annual Emanuel B. Schoenbach Memorial Lecture was delivered in the Solarium, Kronish Pavilion, Maimonides Hospital of Brooklyn, April 16 by Dr. A. McGehee Harvey, professor of medicine, Johns Hopkins University School of Medicine and physician in chief, Johns Hopkins Hospital, Baltimore. Dr. Harvey's talk was on "Systemic Lupus Erythematosus."

OHIO

Sir Francis Walshe Visits Cincinnati.—On April 25 Sir Francis Walshe, British neurologist who is visiting professor of neurology at the University of Cincinnati College of Medicine and Cincinnati General Hospital, April 17-26, presented a lecture at the Veterans Administration Hospital Auditorium on "Mind and Brain." Sir Francis came to the United States through the joint efforts of the University of Cincinnati, Washington University, St. Louis, and the

University of California, San Francisco. At Cincinnati he conducted conferences, ward rounds, and a neurological clinical pathological conference.

Plan Kettering Memorial Medical Center.—Mr. Eugene W. Kettering, son of the late Charles F. Kettering, inventor, has announced plans to develop a 4-million-dollar medical center, including a 200-bed hospital, medical research building, health museum, and quarters for the Montgomery County Medical Society. The Kettering Memorial Medical Center would be situated on the 90-acre Kettering estate located in Kettering Village adjacent to Dayton and would include all of the estate except the residence and immediate grounds which the family will continue to occupy. Financing will be by friends and associates of the late Mr. Kettering, who have indicated their wish to join in developing the medical center, Mr. Kettering said. The project will take two years to complete after contracts are awarded. The hospital is designed for future expansion to 400 beds. Mr. Kettering, who resides in Hinsdale, Ill., has given a health museum to that community. He said the museum planned for the memorial center would be a facility for public education. The building would also house the Montgomery County Medical Center. The new hospital will be privately administered, and will be operated on the open staff principle whereby any physician may practice there so long as he meets the necessary professional standards. Development of the project is to be under direction of the Montgomery County Foundation for Research and Education, with Mr. Kettering as foundation chairman. Physician members of the foundation include Drs. G. Douglas Talbott, Dayton, and Col. John P. Stapp, Acro Medical Laboratory, Wright Air Development Center.

PENNSYLVANIA

General Practice Meeting in Bedford.—The 11th annual scientific assembly of the Pennsylvania Academy of General Practice will be held April 29-May 2 at the Bedford Springs Hotel, Bedford. Sessions are planned under the following headings:

The Management of Automotive Injuries.
Cardiology.
Ophthalmology.
Office Diagnosis, Therapeutics and Pharmacology.
Trauma.

A Symposium on Pediatrics May 2 will include papers by Dr. Edward Press and Dr. Mary Allen Engle, New York City, Dr. Paul Gyorgy, Philadelphia, and Dr. John Lester Reichert, Chicago. Exhibits are planned and question-and-answer periods will conclude three of the sessions. Ten hours of category I credit by the American Academy of General Practice will be given for attendance. For information write the Pennsylvania Academy of General Practice, 4450 State Road, Drexel Hill, Pa.

SOUTH DAKOTA

Dr. Parke Honored.—Dr. Leroy L. Parke, general practitioner in Canton for 46 years, was named "Man of the Year" by the Canton Chamber of Commerce at its annual banquet at the Masonic Temple Jan. 8. Dr. Parke received a lapel pin proclaiming him as "1958 Man of the Year." He has been mayor of the town, a member of the City Council, and served a number of terms as Republican County Chairman.

Plan Fall Meeting for Hunters.—The Council of the South Dakota State Medical Association has voted to continue its "Fall Hunters' Medical Meeting" in 1959, which combines a medical program with pheasant hunting. Lectures are given each morning and evening with hunting in the afternoon. The meeting is usually held the first five days of the hunting season. Physicians from any part of the country are welcome to attend. Enrollment is limited and applications are handled on a "first come, first served" basis. For information, write Mr. John C. Foster, Executive Secretary, South Dakota State Medical Association, 300 First National Bank Building, Sioux Falls, S. D

WASHINGTON

Swedish Surgeon Named Walker–Ames Professor.—Dr. John Philip Sandblom, president of the University of Lund, Sweden, has been appointed a Walker–Ames Professor of Surgery at the University of Washington School of Medicine, Seattle, for a period of six weeks, during March and April, 1960. Dr. Sandblom, is an honorary fellow of the American College of Surgeons, and is immediate past-president of the Swedish Surgical Society. He is founder of the International Surgical Club, and is the author of more than 70 research papers on surgical subjects. While at the university, Dr. Sandblom will lecture to medical students and residents and will give research seminars and demonstration operations.

GENERAL

Neurological Surgeons Meeting in New York City.—The 50th meeting of the Society of Neurological Surgeons will be held at the Neurological Institute of New York, New York City, April 27-28, under the presidency of Dr. Leonard T. Furlow, St. Louis, who will present "The Neurosurgical Aspects of Neurilemommas of the Seventh Cranial Nerve" the morning of April 28. The institute is celebrating its 50th anniversary. Fourteen papers are scheduled for presentation, including "Neutron Capture Therapy—Promise or Fantasy," by Dr. Lee E. Farr, medical director, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island. An exhibit of early New York neurosurgical contributions has been arranged by Dr. Byron Stookey, Sharon, Conn. Discussions and a ladies' program are

planned, and the annual dinner will be held April 27, 7 p. m., at the Waldorf–Astoria. For information write Dr. Bronson S. Ray, 525 E. 68th St., New York 21.

Committee for Information on Alaska.—An Interagency Research Advisory Committee was formed by representatives of the Alaska Department of Health, Alaska Native Health Service (U. S. Public Health Service), Arctic Aeromedical Laboratory (U. S. Air Force), and Arctic Health Research Center (U. S. Public Health Service) for the purpose of assisting scientific investigators in medical and allied fields who may wish to perform research in Alaska. The committee is prepared to assist investigators sponsored by a recognized institution by explaining local situations, in meeting logistic difficulties, and in making available Alaskan facilities. Persons desiring such assistance should write Mr. E. M. Scott, Chairman, Interagency Research Advisory Committee, Arctic Health Research Center, Box 960, Anchorage, Alaska.

Meeting on Goiter in Chicago.—The American Goiter Association will meet at the Drake Hotel, Chicago, April 30-May 2. Over 30 papers are scheduled for presentation including "The Occurrrence of Iodinated Tyrosines in Human Plasma," by Helen E. A. Farran, B.Sc., and R. Bird, Ph.D., London, England, and "Observations Concerning the Free Myo-Inositol of Thyroid Tissue," by Dr. Norbert Freinkel, Dr. Sidney H. Ingbar, Dr. Charles J. Goodner, and Mr. Robert W. White, Boston, and Rex M. C. Dawson, Ph.D., Babraham, Cambridge, England. The presidential address will be given May 1, 2 p. m., by Dr. Warren H. Cole, Chicago, to be followed by the Van Meter prize essay and a round-table discussion, "Thyroid Carcinoma: Morphologic Types and Their Biologic Behavior," moderated by Dr. Lewis B. Woolner, Rochester, Minn. For information write Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N. Y., Secretary.

National Convention on Tuberculosis.—The 1959 annual meetings of the National Tuberculosis Association, the American Trudeau Society, and the National Conference of Tuberculosis Workers will be held at the Palmer House, Chicago, May 24-29. An organizational meeting of the Governing Council of the NCTW is planned. Medical, public health, and nursing sessions will begin May 19, and general sessions will include an opening keynote program that morning. The American Trudeau Society committee and council meetings will be held May 22-24. The Trudeau sessions will include two symposiums: "Pulmonary Emphysema" and "Smoke, Smoking, and Chest Diseases," moderated by Drs. Richard V. Ebert, Little Rock, Ark., and Norton Nelson, New York City, respectively. The Amberson Lecture, "Viral Infections in Man: Problems and Progress," will be given by Dr. Frank L. Horsfall Jr., New York City, and the Robert Keeton Memorial Lecture, "Chronic Bronchitis: Clinical Characteristics, Pathogenesis, and Pathology," will be given by Dr. Charles M. Fletcher, London, England. Case conferences and demonstrations are planned. For information write the National Tuberculosis Association, 1790 Broadway, New York 19.

Surgeons Plan Midsummer Tour.—The International College of Surgeons will conduct a midsummer postgraduate tour, and Dr. Ross T. McIntire, executive director, will be the coordinator. Countries to be visited are the Netherlands, Denmark, Norway, Sweden, Finland, Russia, Austria, Germany, and France. Departures will be from New York July 17 on the S. S. Nieuw Amsterdam or by plane July 24. Tour participants will take in the Amsterdam meeting of the college, July 25-26, and the Helsinki meeting, Aug. 8-9; spend three days in Leningrad, Aug. 11-13, and three days in Moscow, Aug. 15-17; and meet with the fellows of the I. C. S. in Vienna, Aug. 19-20. Plane passengers will return to New York Aug. 27 and boat passengers will arrive Sept. 2. For information, write to Dr. Ross T. McIntire, executive director, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

Meeting on College Health in Philadelphia.—The American College Health Association will hold its 37th annual meeting at the Warwick Hotel in Philadelphia May 6-9. The speaker at the association banquet, May 7, will be Dr. Richard A. Kern, Philadelphia, emeritus professor of medicine, Temple University School of Medicine, rear admiral, M. C., U. S. N. R., retired, and former president of the American College of Physicians. Dr. Donald A. Dukelow, Chicago, will address delegates during the opening general session May 6. The organization comprises some 300 colleges and universities throughout the United States and Canada, and there are about 500 individual members, most of whom are physicians and nurses engaged in student medicine at the college level. For information, write: Dr. Bruce S. Roxby, Chairman, Committee on Local Arrangements, Temple University Health Service, Broad Street at Montgomery Avenue, Philadelphia 22.

Student Meeting in Chicago.—Scientific papers will be presented by medical students and residents for the first time at the ninth annual convention of the Student American Medical Association April 30-May 3 at the Sheraton Hotel, Chicago. The papers will deal with such medical topics as cancer, hormones, internal parasites, and blood cholesterol levels. Eight medical students and three residents will present their papers at scientific sessions May 1 and 2. Featured speakers will be Dr. Alton E. Ochsner, New Orleans, who will discuss smoking

and its relationship to lung cancer at the Saturday session, and Dr. Corbett H. Thigpen, Augusta, Ga., psychiatrist, who wrote "The Three Faces of Eve." Eight scientific exhibits, prepared by students, and four prepared by interns and residents, will be on view during the meeting. The House of Delegates will meet on April 30 and May 3. The Woman's Auxiliary to SAMA will hold its second annual meeting simultaneously. The annual banquet and dance May 1 will feature Carl C. Byers, Cleveland, speaking on "He Who Laughs—Lasts!" The choir from the Wayne State University College of Medicine, Detroit, will sing. A new feature of the meeting will be a photographic salon, which will show pictures of both medical and general interest. For information, write the Student American Medical Association, 430 N. Michigan Ave., Chicago 11.

Meeting on Cleft Palate Rehabilitation.—The 17th annual meeting of the American Association for Cleft Palate Rehabilitation will be held April 30-May 2 at the Sheraton Hotel, Philadelphia, under the presidency of Jack Matthews, Ph.D., Pittsburgh. April 30 will be devoted to a short course on problems associated with rehabilitation of individuals with cleft lips and palates and will include round-table discussions. The general sessions will include the following papers by foreign authors:

Cephalometric Measurements on Adult Patients with Unoperated Cleft Palates, Drs. Fernando Monasterio and Alfonso Serrano Rebeil, Mexico, D.F., Mexico.

Cleft Lip and Palate in Twins and Offspring of Twins, Elizabeth Curtis, M.A., Toronto, Canada.

Speech Analysis of Over 20 Children, Prior and Following Pharyngeal Flap Type Repair, Margaret Hamlen, L.C.S.T., Toronto, Canada.

The annual business meeting is planned for 3:30 p. m., May 1. Fee for nonmembers is $3. For information, write D. C. Spriestersbach, Ph.D., Department of Otolaryngology, University Hospitals, Iowa City, Iowa, Secretary-Treasurer.

Training Program in Steroid Biochemistry.—The Worcester Foundation for Experimental Biology, Shrewsbury, Mass., with the department of chemistry, Clark University, Worcester, Mass., and the department of biochemistry, College of Medicine, University of Utah, Salt Lake City, announced the 1959-1960 session of the Training Program for Steroid Biochemistry. "To alleviate the shortage of qualified trained personnel in steroid research," a program will be sponsored by the U. S. Public Health Service through the National Cancer Institute, National Institutes of Health. The courses will stress both theoretical and practical aspects as well as specialized laboratory techniques in steroid research. Postdoctoral candidates (M.D. or Ph.D.) selected for admission both at Worcester and Utah will receive stipends of $5,500 for one year. Predoctoral candidates (B.S., M.S., or equivalent) selected for admission (only at Worcester) will receive stipends of $1,800 for a six-month period. Send inquiries and requests for applications to: Dr. Kristen Eik-Nes, Department of Biochemistry, College of Medicine, University of Utah, Salt Lake City. Classes start Oct. 1. Final date for completion of application is June 1.

Meeting of Pediatricians.—The 69th annual meeting of the American Pediatric Society will be held May 6-8 at The Inn, Buck Hill Falls, Pa., under the presidency of Dr. Joseph Stokes Jr., who will present the presidential address May 6, 8 p. m. Guest speaker at the first session will be Dr. George Siim, State Serum Institute, Copenhagen, Denmark, will present "Studies on Acquired Toxoplasmosis." Of the 97 papers scheduled for presentation the following include foreign authors:

Relation of Intracellular Ions to Metabolite Sequences in Kwashiorkor, Drs. Jack Metcalf, Chicago, Silvestre Frenk, Mexico, D.F., Mexico, and Irena Antonowicz, M.S., Boston.

Motions of the Pharynx and Larynx with Aeration of the Lung at Birth, Drs. James F. Bosma, Salt Lake City, Utah, and John Link, Stockholm, Sweden.

Familial Pulmonary Fibrosis and Its Relationship with the Hamman–Rich Syndrome, Drs. Bernard Laski, W. L. Donohue, J. D. Munn, and Irene Uchida, Ph.D., Toronto, Canada.

A business meeting is planned for May 7, 8:30 p. m. For information write Dr. Aims C. McGuinness, Secretary-Treasurer, American Pediatric Society, 2800 Quebec St., N. W., Washington 8, D. C.

Dr. Boggs to Direct Fund for Education.—Dr. Robert Boggs was appointed director of the Basic Medical Research Program by the National Fund for Medical Education. The Medical Research Program, recently organized by the national fund, will administer funds raised by local United Funds and Community Chests, affiliated with the United Community Funds and Councils of America, for support of fundamental basic research on a national scale. The fund reportedly will not compete with the national voluntary health agencies which sponsor large numbers of research projects in specific fields, "but rather will complement the basic research activities which are a part of these programs by initiating research principally in areas that are not ordinarily covered by specific research projects." Dr. Boggs is a former dean of the New York University Post Graduate Medical School where he served from 1948 to 1955. He is chairman of the National Committee for Resettlement of Foreign Physicians and a consultant on medical projects of the Unitarian Service Committee. In 1959, the National Fund for Medical Education will award grants of over 3 million dollars to the medical schools, bringing to nearly 19 million dollars the total awarded since 1951, when the first grants were made.

Grants to Aid School Faculties.—Twenty-five physicians, teachers, and research workers on the faculties of medical schools in the United States and Canada were appointed Markle Scholars in Medical Science by the John and Mary R. Markle Foundation, New York. Each appointment carries with it a $30,000 grant, appropriated to the medical school where the scholar will teach and do research, to be used toward his support and to aid his research. In the 12 years the fund has been making the scholar grants, over 250 doctors in 74 medical schools in the U. S. and Canada have been aided with total appropriations of $7,550,000. The purpose of the program is "to strengthen medical education by offering academic security and financial help to teachers and investigators in medical schools early in their careers." There were more applicants for the grants this year than ever before. The 25 scholars were selected from nominees from 65 medical schools by five committees of educators and other professional men through extended interviews over three-day periods. The John and Mary R. Markle Foundation was established in 1927 by the late John Markle, Pennsylvania coal operator, "to promote the advancement and diffusion of knowledge . . . and the general good of mankind."

Awards for Heart Research.—The American Heart Association announced the award of $1,562,243 to 182 scientists engaged in a broad range of research studies, most of them in the category of basic research, aimed at pinpointing the underlying causes of heart and blood vessel disease. The awards, which went to individuals in 28 states, the District of Columbia, and two foreign countries, are for 12 months, beginning July 1. Dr. Francis L. Chamberlain, San Francisco, president of the association, pointed out that the awards were made possible through public contributions to the annual Heart Fund appeal. They represent the first part of the 1959-1960 national research support program in which the national office of the American Heart Association participates jointly with its state and local affiliates. A second group of awards, representing grants-in-aid, will be announced in the near future. The fellowship awards just announced include provision for the association's six "career investigators," scientists selected to receive support throughout their productive lives. Also named were 83 "established investigators." This category of award provides five years of uninterrupted support to mature scientists conducting independent programs of research. Ten established investigators also received supplementary grants to help underwrite the costs of technical assistance, equipment, and supplies required for their research. Also named were 45 scientists as "advanced research fellows" and 48 as "research fellows."

Conference on World Health.—The second National Conference on World Health will be held at the Statler Hotel in Washington, D. C., May 7-9, under the chairmanship of Dr. Milton S. Eisenhower, president of the Johns Hopkins University, Baltimore. Among those scheduled to speak is the President of the United States. Arthur S. Flemming, Secretary of Health, Education and Welfare and Dr. Leroy E. Burney, Surgeon General, U. S. Public Health Service, and leaders in public health, medicine, science, and industry will participate as speakers or discussion leaders. Dr. Abraham Horwitz, director, Pan American Sanitary Bureau, Regional Office of the World Health Organization, will speak. Special topics will be taken up in panel discussions and study groups which will report at the end of the conference: (1) prospects for an International Health Year; (2) health and economic development; (3) health and the American image abroad; (4) problems of health in relation to population changes; (5) training and exchange programs of public health personnel; (6) international health and medical research; and (7) the role of nongovernmental health organizations and individuals in the international promotion of public health. Any interested person may take part in the forum discussions and working parties of the conference. Registration will be May 7, 10 a. m.-2 p. m. The fee is $3. Students may register free. The conference is held under the sponsorship of the National Citizens Committee for the World Health Organization, which sponsored the first National Conference on World Health in Washington in 1953. For information, write Mr. Philip E. Nelbach, Executive Secretary, National Citizens Committee for the WHO, 1790 Broadway, New York 19, N. Y.

Society News.—Dr. Lester R. Dragstedt, professor of surgery, University of Chicago, was reelected president of the **National Society for Medical Research.** Also reelected were vice-president, Dr. Alfred Blalock, chief of surgery, Johns Hopkins University, Baltimore; and secretary-treasurer, Dr. Louis N. Katz, head of cardiovascular research, Michael Reese Hospital, Chicago.—The **Mississippi Valley Medical Society** elected the following officers for 1959: president-elect, Arkell M. Vaughn, Chicago; Illinois vice-president, Frank H. Fowler, Chicago; Iowa vice-president, William J. Wolf, West Union; Kansas vice-president, Clarence H. Benage, Pittsburg; Minnesota vice-president, Jacob A. Bargen, Rochester; Missouri vice-president, Barney W. Finkel, St. Louis; Nebraska vice-president, Clyde L. Kleager, Hastings; North Dakota vice-president, Reuben H. Waldschmidt, Bismarck; South Dakota vice-president, Alonzo P. Peeke, Volga; Wisconsin vice-president, Wallace S. Marshall, Watertown; secretary-treasurer, Harold Swan-

berg, Quincy, Ill.; assistant secretary-treasurer, Preston C. Hall, St. Louis; accounting officer, Jacob E. Reisch, Springfield, Ill. The 24th annual meeting will be held at the Hotel Chase, St. Louis, Sept. 29-Oct. 1, immediately preceding the American Medical Writers' Association meeting Oct. 2-3. The 1959 president is Dr. Arthur F. Fritchen, Decorah, Ia., trustee, Iowa State Medical Society, elected Nov., 1957.——Dr. Cecil M. Kohn, of Kansas City, Mo., was named president of the **American College of Allergists,** at the 15th annual congress of the college, succeeding Dr. Merle W. Moore of Portland, Ore. Named president-elect is Dr. Giles A. Koelsche, Rochester, Minn. Other officers include Dr. Philip M. Gottlieb, Philadelphia, first vice-president; Dr. William B. Steen, Tucson, Ariz., second vice-president; and Dr. Meryl M. Fenton, of Detroit, secretary.——The **Rocky Mountain Radiological Society** has elected the following officers: Drs. George A. Unfug, Pueblo, Colo., president; Gerald S. Maresh, Denver, president-elect; Peter E. Russo, Oklahoma City, Okla., first vice-president; Paul E. Re Pass, Denver, second vice-president; John H. Freed, 4200 E. Ninth Ave., Denver 20, secretary-treasurer; and H. Milton Berg, Bismarck, N. D., historian. The 1959 meeting will be held at the Shirley–Savoy Hotel, Denver, Aug. 20-22.

CANADA

Laurentian Hormone Conference.—The 1959 Laurentian Hormone Conference of the American Association for the Advancement of Science will be held at Mont Tremblant Lodge, Mont Tremblant, Quebec, Aug. 30-Sept. 4. Investigators interested in attending this conference should apply to the Committee on Arrangements, Laurentian Hormone Conference, 222 Maple Avenue, Shrewsbury, Mass. The conference is arranged under four general headings: Mechanism of Hormone Action, Peptide Hormones, Thyroid Hormones, and Hormones and Metabolism. Papers by foreign participants will include "Hormonal Activity of Active Polypeptides," by Hector Croxatto and Livio Barnafi, Catholic University, Santiago, Chile, and "Influence of Hormones on Adipose Tissue as a Center of Fat Transport," H. E. Wertheimer, The Hebrew University–Hadassah Medical School, Jerusalem, Israel. Applications will be screened and invitations issued by the Committee on Arrangements by June 12.

Establish Lectureship in Ophthalmology.—Dr. Walter W. Wright, University of Toronto professor emeritus of ophthalmology, has been honored by a lectureship in his name established with funds raised by department of ophthalmology staff members, former students, and friends. Dr. Wright conceived and developed the postgraduate training of physicians in eye diseases, reportedly the first such training in Canada, which began at the University of Toronto in 1941. Dr. Wright is also consultant to the Canadian National Institute for the Blind, the Toronto General Hospital, and the Hospital for Sick Children. He joined the University of Toronto staff in 1908, served as an ophthalmic specialist in the Canadian Army Medical Corps, returned to the university in 1921, and headed the department of ophthalmology from 1941 until retirement in 1946. The first Walter W. Wright lecture was given by Prof. Norman Ashton, ophthalmic pathologist of the Institute of Ophthalmology, London, England, who spoke on "A New Approach to the Problem of Diabetic Retinopathy" at the Academy of Medicine Feb. 27.

LATIN AMERICA

Cuba Joins Malaria Eradication Drive.—The new Cuban government and the Pan American Health Organization recently pledged themselves to eradicating malaria and the carrier of urban yellow fever in Cuba. The agreement was signed by provisional President Manuel Urrutia and Minister of Health Dr. Julio Martinez Paez for Cuba and Dr. Abraham Horwitz, of Chile, director of the Pan American Sanitary Bureau, regional office for the Americas of the World Health Organization and PAHO's operating arm, for the international health organization. Cuba has supported the resolutions in favor of the hemisphere and global malaria eradication campaigns in Pan American Sanitary Conferences and World Health Assemblies, but only now has it been possible to start on an eradication program. Though begun in 1953, Cuba's efforts toward eradicating the Aëdes aegypti mosquito have been modest, reportedly because of lack of funds. Under the terms of the new agreement they will be expanded.

FOREIGN

Symposium on Sulfur.—The Third International Symposium on Sulfur Therapy will be held in Tabiano and in Salsomaggiore, Italy, May 8-10 on occasion of the inauguration of the new termae of Tabiano "Emilio Respighi." Professors Demenico Campanacci, of the University of Bologna, and Carlo Bianchi, of the University of Parma, will preside. Italian and foreign scientists will participate and will read papers, including Dr. Piero P. Foa, of Chicago, and speakers from Austria, France, Hungary, and Spain. For information, write: Segreteria,

Third International Symposium on Sulfur Therapy, Institute di Patologia Medica, Ospedale Sant'Orsola, Bologna, Italy.

Seminar of Ophthalmology in Tunis.—The first North African Seminar of Ophthalmology will be held in Tunis on May 3-6. The Societe Tunisienne d'Ophthalmologie will meet on the occasion of its third anniversary, and the opening of the Ophthalmological Center will be a part of the seminar, at which Algerian and Moroccan Colleagues, will participate. The subjects will be the following: trachoma; keratoplasty; and recent advances in ophthalmology. Free communications (on internal medicine, ophthalmology, avitaminosis), film projections, and operating sessions will be included. French, English, and Arabic will be accepted for the discussions. Excursions of one or three days will be organized at the end of the meeting. A special program will be prepared for ladies. For information, write Societe Tunisienne d'Ophthalmologie, Le Secretaire General, Dr. R. Mabrouk, Centre Ophthalmologique, Tunis.

CORRECTION

New Mexico Meeting in Las Cruces.—In THE JOURNAL, March 28, page 1490, in the Medical News section, sessions for the annual meeting of the New Mexico Medical Society, May 6-7, were listed as being held at New Mexico State University, Albuquerque. This should have read Milton Hall at New Mexico State University, Las Cruces.

EXAMINATIONS AND LICENSURE

MEDICAL SPECIALTY BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 8, 1960. Final date for filing application is January 8. Sec., Dr. Forrest E. Leffingwell, 217 Farmington Ave., Hartford 5, Conn.

AMERICAN BOARD OF DERMATOLOGY: *Written.* Several Cities, Oct. 5. *Oral.* Oklahoma City, Jan. 15-18, 1960. The final date for filing all applications is July 1, 1959. Sec., Dr. Beatrice M. Kesten, One Haven Ave., New York 32.

AMERICAN BOARD OF INTERNAL MEDICINE: *1959 Schedule—Written,* Oct. 19. Final date for filing application is May 1. *Oral.* For candidates on the West Coast, Portland, Ore., Sept. 9-12. Final date for filing application was March 1. *Oral.* For candidates on the East Coast, Nov. 6-7, 9-10. Final date far filing application was March 1. Sec.-Treas., Dr. William A. Werrell, One West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: **Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.**

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *I. Oral and Clinical.* Chicago, May 8-19. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates. Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible. Deadline for receipt of new and reopened application for the 1960 examinations is Aug. 1, 1959. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* Philadelphia, June 2-6; St. Louis, Oct. 6-10. *Written.* January 1960 in various cities. Applications for the 1960 written examination must be filed before July 1. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 19-21, 1960. The deadline for the receipt of application is Aug. 15, 1959. Sec., Dr. Sam W. Banks, 116 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 5-9. Final date for filing application is April 1. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Written.* January 1960. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Written, Part I,* and *Oral, Part II.* Philadelphia, June 12-13. Final date for filing application was February 15. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written.* Miami, Fla., Oct. 15-17. Final date for submitting case reports is July 1. Corresponding Secretary, Miss Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8, Mo.

AMERICAN BOARD OF PROCTOLOGY: *Oral and Written.* Philadelphia, September. Final date for filing application is March 15. Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New Orleans, Mar. 16-17; Chicago, Oct. 19-20; New York, Dec. 14-15. Training credit for full time psychiatric and/or neurologic assignment in unapproved military programs or services between the dates of Jan. 1, 1950 and Jan. 1, 1954 was terminated on Jan. 1, 1959. Sec., Dr. David A. Boyd, 102-110 Second Ave. S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Examination.* Chicago, June 2-4. If needed a special examination will be offered at this time in Nuclear Medicine to diplomates in Radiology or Therapeutic Radiology. The deadline for filing applications is April 1. Sec., Dr. H. Dabney Kerr, Kahler Hotel Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written* examinations (Part I) will be held on December 2, 1959 at various centers to be announced later. Candidates are urged to apply several months before completion of training requirements although the closing date for filing applicatcns is August 1. Those completing training requirements after September 30 cannot be considered for the Part I examination in December of the same year. *Part II.* Indianapolis, May 11-12; Columbus, Ohio, May 14-15. Sec., Dr. John B. Flick, 1617 Pennsylvania Blvd., Philadelphia 3.

BOARD OF THORACIC SURGERY: *Written.* Various centers throughout the country, September 1959. Final date for filing application is July 1. *Oral.* September. Final date for filing application is July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

AMERICAN BOARD OF UROLOGY: *Written.* Approximately 25 cities throughout the country, December 4, 1959. *Oral-Clinical* and *Examination in Pathology.* Chicago, February 1960. Final date for filing application is Sept. 1, 1959. Sec., Dr. William Niles Wishard, 30 Westwood Rd., Minneapolis 26, Minn.

GOVERNMENT SERVICES

NAVY

Symposium on Nuclear Medicine.—The United States Naval Medical School, National Naval Medical Center will present its second symposium on advances in nuclear medicine on May 9. This symposium will cover all aspects of the management of the acute radiation syndrome and the care of radiation casualties. The morning session will be devoted to a discussion of low background total body counting, while the afternoon session will cover the diagnosis, management, and treatment of acute radiation syndrome. Authorities scheduled to appear for this symposium are Dr. C. E. Miller, Argonne National Laboratory; Dr. Frederick Reines, Los Alamos Scientific Laboratory; Dr. M. A. Van Dilla, Los Alamos Scientific Laboratory; Dr. R. C. McCall, General Electric Company; Commander H. J. Waters, Technical Assistant for Science Advisor, White House; Dr. Gordon Brownell, Massachusetts General Hospital; Dr. Eugene Cronkite, Brookhaven National Laboratory; Major Kent Woodward, MC, USA, Walter Reed Institute of Research; Dr. Gordon Zubrod, National Cancer Institute; Dr. H. D. Bruner, Division of Biology and Medicine, Atomic Energy Commission; Dr. F. P. Ellinger, U. S. Naval Medical Research Institute; Lieut. Col. Gerald McDonnell, Office of the Army Surgeon General; Dr. Gould A. Andrews, Oak Ridge Institute of Nuclear Studies; and Commander William McFarland, MC, USN, United States Naval Hospital.

There is no registration fee, and all those interested are invited to attend. A special luncheon program, at which Dr. Robert H. Hasterlik of the Argonne Cancer Research Hospital will speak, will be given at the Commissioned Officers' Club, National Naval Medical Center. For further information one may contact the Commanding Officer, U. S. Naval Medical School, National Naval Medical Center.

VETERANS ADMINISTRATION

Big Brother System.—A unique "big-brother" system is being used by hospitalized veterans in their fight against mental illness. Recovering patients at the VA mental hospital in Salisbury, N. C., have formed a society known as "The Helping Hand," in which each member holds himself responsible for more seriously ill patients. Dr. S. J. Muirhead, manager of the hospital, said the society has proved an effective form of help for both its members and nonmembers. Improved patients can help less fortunate patients towards recovery in ways that the hospital staff cannot, since patients ofttimes notice improvement in the condition of their companions and thus become aware that their own improvement is possible. The society's membership is restricted to patients approved by its own screening committee and elected by unanimous vote.

Personal.—Dr. Irvin J. Cohen was appointed assistant chief medical director for planning to succeed Dr. William W. Fellows, who retired in March. Dr. Cohen will direct the medical care program for VA's 171 hospitals, about 100 outpatient clinics, and 17 domiciliary homes. He has been a deputy director for planning since August, 1958.

PUBLIC HEALTH SERVICE

Traineeship in Neurology.—A special traineeship program, under the direction of the National Institute of Neurological Diseases and Blindness, was initiated about three years ago to increase the number of investigators competent to meet the complex problems presented by neurological and sensory disorders. Since its inception, 163 persons have received one to three years of training at 48 institutions in the United States and 16 institutions in seven foreign countries. To qualify for an award, the candidate should have an M.D., Ph.D., or other equivalent degree and at least three years of training or experience pertinent to the training for which he seeks support. The applicant must be a United States citizen or have filed a declaration of intent.

Awards generally are made for not less than nine months and not more than one year, but all awards are subject to renewal for periods up to five years. Stipends are determined individually in accordance with each applicant's qualifications and the financial support needed to obtain the training applied for. Such stipends may range from $6,500 to $17,500 a year. Traineeships frequently are used by basic scientists and clinicians to obtain prolonged and thorough training in highly specialized areas related to their previous experience. For instance, a pediatrician may wish to take specialized training in neurology, ophthalmology, or otolaryngology; and a pathologist, anatomist, or pharmacologist may wish to receive training in the neurological aspects of his discipline. Other candidates seek to increase competence and knowledge in a particular facet of a chosen field for a shorter period. For example, academic and medical faculty members in increasing numbers are using this program to broaden their research experience during sabbatical or other institutional leaves of absence. Requests for complete information about the special traineeship program and application forms should be addressed to Chief of Extramural Programs, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Md.

DEATHS

Barbour, Fredric Leaworth Ⓜ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; served on the faculty of his alma mater; associated with the Illinois Central Hospital, where he died Feb. 7, aged 74.

Blumenthal, Basil Ⓜ Washington, D. C.; Columbia University College of Physicians and Surgeons, New York City, 1934; specialist certified by the American Board of Internal Medicine; veteran of World War II; clinical assistant professor of medicine; Georgetown University School of Medicine; associated with the Washington General Hospital and the Georgetown University Hospital, where he died Dec. 6, aged 49.

Brown, Charles Arthur, Kansas City, Mo.; University Medical College of Kansas City, 1905; died in the University of Kansas Medical Center Jan. 11, aged 76.

Brown, Grover Cleveland Ⓜ Ste. Marie, Ill.; Barnes Medical College, St. Louis, 1905; member of the American Psychiatric Association; served as managing officer of the Jacksonville (Ill.) State Hospital; at one time district health superintendent for the state; died in St. Anthony Memorial Hospital, Effingham, Nov. 30, aged 73.

Buch, Samuel Montgomery Ⓜ New York City; University and Bellevue Hospital Medical College, New York City, 1905; past-president and charter member of the Bronx Gynecological and Obstetrical Society; consultant, Jewish Memorial Hospital; died Jan. 24, aged 76.

Burnham, Leon Ray Ⓜ Augusta, Maine; Tufts College Medical School, Boston, 1930; veteran of World War II; chief of physical medicine and rehabilitation at the Veterans Administration Center, Togus; died Jan. 21, aged 52.

Burns, Emmet Samuel, Beaver Falls, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; died in Ellwood City Jan. 27, aged 90.

Burrows, Byron L., Mount Pleasant, Tenn.; Meharry Medical College, Nashville, Tenn., 1915; died in the Hubbard Hospital, Nashville, Jan. 15, aged 70.

Burton, Robert Elmore, Kingston, Ga.; Eastern University School of Medicine, Baltimore, 1913; past-president of the Bartow County Medical Society; held the post of mayor; served as president of the Kingston Lions Club; died in the Floyd County Hospital, Rome, Jan. 17, aged 68.

Byars, Alfred Henry, Coronado, Calif.; Barnes Medical College, St. Louis, 1898; veteran of World War I; died Jan. 19, aged 86.

Caro, Alfred, Elmhurst, N. Y.; Friedrich–Wilhelms–Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1910; died in the Physicians Hospital, Jackson Heights, Dec. 27, aged 73.

Cary, Raymond John Ⓜ Long Beach, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1912; veteran of World War I; associated with the Seaside Memorial Hospital, where he died Jan. 7, aged 73.

Chalmers, Duncan Macfarlane Ⓜ Long Beach, Calif.; Boston University School of Medicine, 1934; veteran of World War II; certified by the National Board of Medical Examiners; formerly associated with the Indian Service in Juneau, Alaska; died Jan. 10, aged 51.

Cloyd, John Archer, Upper Darby, Pa.; University College of Medicine, Richmond, 1912; for many years a medical officer in the U. S. Navy; served on the staffs of the Presbyterian Hospital in Philadelphia, Bryn Mawr (Pa.) Hospital, and the Delaware County Hospital in Drexel Hill, where he died Jan. 20, aged 68.

Cook, Albert Thomas, Zapata, Texas; Southern Methodist University Medical Department, Dallas, 1912; for many years city and county health officer for Laredo and Webb County; health officer of Zapata County; died in the Mercy Hospital, Laredo, Jan. 21, aged 68.

Cooley, Chester Lynn Ⓜ San Francisco; Stanford University School of Medicine, San Francisco, 1928; specialist certified by the American Board of Obstetrics and Gynecology; on the faculty of the Stanford University School of Medicine; associated with Stanford University Hospitals, St. Elizabeth's Infant Hospital, Children's Hospital, and the Mary's Help Hospital; on the editorial board of the *Western Journal of Surgery, Obstetrics and Gynecology;* died Jan. 22, aged 64.

Corbett, Joseph Horace, Jasper, Fla.; Atlanta College of Physicians and Surgeons, 1901; died Jan. 25, aged 80.

Ⓜ Indicates Member of the American Medical Association.

Counts, William L. Ⓜ Chillicothe, Ohio; Medical College of Ohio, Cincinnati, 1897; an honorary member of the Chillicothe General Hospital staff; died Jan. 12, aged 92.

Cox, J. Emit Ⓜ Fresno, Calif.; Central Medical College of St. Joseph, Mo., 1895; for 30 years member of the board of the Fresno County Tuberculosis Association; at one time practiced in Coalinga, where he was school physician in the Coalinga School District and city health officer; died Dec. 28, aged 93.

Crawford, Georgina Lily Urquhart Ⓜ East Orange, N. J.; University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1905; on the medical staff of the New Jersey Bell Telephone Company and Essex County Girls' Vocational School in Newark; served on the staff of Orange Memorial Hospital, where she died Feb. 2, aged 76.

Creskoff, Adolph Jay Ⓜ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1934; associate professor of clinical medicine at his alma mater; chief of hematology section, Hospital of the University of Pennsylvania; consultant in hematology, Veterans Administration Hospital in Philadelphia; consultant in hematology at the Delaware County Hospital in Drexel Hill, Pa.; died Jan. 22, aged 50.

Darling, Herbert Henry Ⓜ San Rafael, Calif.; Harvard Medical School, Boston, 1925; veteran of World Wars I and II; served as chief of the medical section of the Veterans Administration regional office in San Francisco, where he was formerly on the staffs of St. Francis, Stanford, and Children's hospitals; died Jan. 23, aged 58.

Davies, Daniel Jenkin Ⓜ Cincinnati; Miami Medical College, Cincinnati, 1900; specialist certified by the American Board of Obstetrics and Gynecology; on the faculty of the University of Cincinnati College of Medicine; associated with Bethesda, Deaconess, and Good Samaritan hospitals; died in the Christ Hospital Jan. 27, aged 87.

De Ferari, George Joseph, Brooklyn; University and Bellevue Hospital Medical College, New York City, 1925; interned at St. Vincent's Hospital in New York City; associated with the Brooklyn Doctors Hospital; for many years associated with the Brooklyn Hospital; died Jan. 10, aged 60.

Dickson, Archibald John Ⓜ La Crescenta, Calif.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1903; formerly on the staff of the Willard Parker Hospital in New York City; died in the Alta Vista Hospital, Pasadena, Jan. 11, aged 80.

Dixon, William Harvey, Rocky Mount, N. C.; Jefferson Medical College of Philadelphia, 1919; served as medical examiner for the Royal Arcanum for 37 years; died in the Park View Hospital Jan. 23 aged 63.

Dodd, David Wallace Ⓜ Louisville, Ky.; University of Louisville (Ky.) School of Medicine, 1917; veteran of World Wars I and II; assistant chief medical officer for the Veterans Administration; at various times associated with Veterans Administration hospitals in Lexington, Murfreesboro, Tenn., and Nashville, Tenn.; died in the Norton Memorial Infirmary Jan. 15, aged 66.

Dudley, Will Kenney, Paris, Ky.; Kentucky University Medical Department, Louisville, 1904; died in St. Joseph Hospital, Lexington, Jan. 17, aged 80.

Elliott, Joseph Norman Ⓜ Bloomington, Ill.; Northwestern University Medical School, Chicago, 1921; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; associated with the Brokaw Hospital in Normal and the Mennonite Hospital; veteran of World War I; died Jan. 21, aged 64.

Elliot, Robert Edwin Ⓜ Van Nuys, Calif.; Loyola University School of Medicine, Chicago, 1932; on the staff of the Valley Hospital; died Jan. 17, aged 51.

Engelman, Bruno Simon Ⓜ Buffalo, N. Y.; Friedrich–Wilhelms–Universität Medizinische Fakultät, Berlin, Prussia, 1921; member of the American Academy of general practice; on the staff of the Millard Fillmore Hospital; served a residency at the State Institute for the Study of Malignant Diseases; died Jan. 10, aged 63.

Forsythe, William Alexander, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1917; also a graduate in pharmacy; on the staff of the Mercy–Douglass Hospital; died Jan. 19, aged 74.

Friedman, Harry Falk Ⓜ Miami Shores, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1912; specialist certified by the American Board of Radiology; veteran of World War I; served on the faculty of his alma mater; formerly practiced in Boston, where he was on the faculty of Tufts College Medical School, and was associated with the Boston Dispensary, Westboro (Mass.) State Hospital, Beth Israel Hospital, Massachusetts Memorial Hospital, and New England Hospital for Women and Children; died Jan. 23, aged 68.

Garst, Virgil Paul, Malad City, Idaho; St. Louis University School of Medicine, 1913; Oneida County examining physician for Selective Service inductees during World War II; formerly member of the school board; served on the staff of the Oneida County Hospital; died Jan. 13, aged 78.

Ghering, Harold Alfred Ⓜ Edinboro, Pa.; University of Pittsburgh School of Medicine, 1913; veteran of World War I; for many years physician for Edinboro State Teachers College; on the staffs of the Hamot and St. Vincent's hospitals in Erie; vice-president of the First National Bank; died in the Hamot Hospital, Erie, Jan. 25, aged 72.

Goodwin, Frank Perry Ⓜ Jamestown, N. Y.; Cornell University Medical College, New York City, 1906; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; veteran of World War I; past-president of the Chautauqua County Medical Society; member of the staffs of the Jamestown General and Woman's Christian Association hospitals; died Jan. 16, aged 76.

Gosnell, Thomas E. Ⓜ Louisville, Ky.; University of Louisville Medical Department, 1886; died Jan. 7, aged 99.

Graves, Stephen Monroe Ⓜ Clarksville, Ark.; (licensed in Arkansas in 1903); died Feb. 1, aged 88.

Greene, Garland Vestal, Mocksville, N. C.; North Carolina Medical College, Charlotte, 1916; veteran of World War I; served as county coroner; died Jan. 27, aged 68.

Gross, Leroy Calderwood Ⓜ Auburn, Maine; Tufts College Medical School, Boston, 1930; on the staffs of the St. Mary's General Hospital and the Central Maine General Hospital in Lewiston, where he died Jan. 23, aged 60.

Hancock, Virgil Kinney Ⓜ Seattle; Northwestern University Medical School, Chicago, 1919; veteran of World War I; died in the Swedish Hospital Jan. 13, aged 68.

Handelman, Milton S. Ⓜ Chicago; University of Illinois College of Medicine, Chicago, 1933; associated with Weiss Memorial and Mount Sinai hospitals; died in Hollywood, Fla., Feb. 5, aged 51.

Hane, Richard Lincoln Ⓜ Pacific Grove, Calif.; Ohio State University College of Medicine, Columbus, 1924; fellow of the American College of Surgeons; past-president of the Monterey County Medical Society and the Monterey Academy of Medicine; formerly practiced in Fort Wayne, Ind., serving as president of the Allen County Medical Society and as secretary of the Fort Wayne Medical Society; veteran of World War II; formerly held a fellowship at the Mayo Clinic in Rochester, Minn.; associated with the Peninsula Community Hospital in Carmel and the Monterey Hospital, where he died Jan. 25, aged 58.

Hanson, Adolph Melanchton Ⓜ Faribault, Minn.; born in St. Paul Sept. 11, 1888; Northwestern University Medical School, Chicago, 1911; member of the Central Society for Clinical Research; past-vice-president of the Minnesota State Medical Association, which in 1933 awarded him a gold medal in recognition of his isolation of the parathyroid hormone; in December, 1932, the U. S. Patent Office confirmed Dr. Hanson's claim to the discovery; Dr. Hanson made the Smithsonian Institution, Washington, D. C., the benefactor of all royalties for the furtherance of scientific research; in 1927 awarded the first prize for work on parathyroid gland by the Minnesota Society of Internal Medicine; in 1935 awarded the gold medal of the Southern Minnesota Medical Association for his exhibit at the state meeting; the following year named an associate in research of the Philadelphia Institute for Medical Research; veteran of World Wars I and II; on the staff of St. Lucas Hospital; inventor of dural separator and bone elevator used in brain surgery; for many years in charge of the Hanson Research Laboratory and donated its scientific equipment to the chemistry department of St. Olaf College in Northfield, July, 1942, to be perpetuated as a special laboratory for advanced students; in 1943 St. Olaf College conferred on him the honorary degree of doctor of science in recognition of his work on the isolation of the active principle of various hormones; author of "Practical Helps in the Study and Treatment of Head Injuries." 1925; also wrote a chapter, Management of Gunshot Wounds of the Head and Spine, in Volume XI, the Medical Department of the U. S. Army in the World War; contributor of numerous articles on parathyroid and thymus glands, head, spine, and superficial nerve surgery; died Jan. 15, aged 70.

Haworth, Edgar Sylvester Ⓜ Wichita, Kan.; Kansas City (Mo.) Hahnemann Medical College, 1907; died Jan. 9, aged 78.

Heaps, Carrie Erdman, Shamokin, Pa.; Woman's Medical College of Baltimore, 1907; died in the Shamokin State Hospital Jan. 5, aged 75.

Heine, William Howard Ⓜ Fremont, Neb.; University of Nebraska College of Medicine, Omaha, 1905; also a pharmacist; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served during World War I; on the staff of the Dodge County Community Hospital; died Jan. 24, aged 81.

Hetrick, Llewellyn Evans, Hampton, Conn.; born in Lancaster, Pa., Dec. 11, 1875; Hahnemann Medical College and Hospital, Philadelphia, 1898; specialist certified by the American Board of Otolaryngology; life member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; member of the New York Academy of Medicine; formerly associated with the New York Medical College, Flower and Fifth Avenue Hospitals and the New York Polyclinic Medical School and Hospital in New

York City, where he served on the staffs of the Metropolitan and Flower and Fifth Avenue hospitals; veteran of World War I; following the war, was active for 22 years in the medical officers reserve corps, with the rank of colonel, and was retired in 1955, according to Army regulations; during World War II was active as examining physician in the Selective Service System; died in Colchester Jan. 20, aged 83.

Hilldrup, Don Guernsey Ⓜ Colonel, U. S. Army, retired, Indianapolis; born in Windfall, Ind., Nov. 9, 1887; Indiana University School of Medicine, Indianapolis, 1915; after serving an internship at the Indianapolis City Hospital, entered the medical corps of the U. S. Army in 1917 and served with both the American Expeditionary Forces and the Army of Occupation in Germany until 1920; later served at various Army posts; during World War II established military hospitals in Central Africa and later was surgeon of the Fifth and Sixth U. S. Army Service Commands; awarded the Legion of Merit; retired Aug. 31, 1948; at one time a member of the Army Medical Retirement Board in Washington, D. C.; served for three years as medical director of the Indianapolis American Red Cross Blood Bank; fellow of the American College of Surgeons; died in the Memorial Clinic of Indianapolis Jan. 28, aged 71.

Hine, Ulis Bryan Ⓜ Indianapolis; Indiana University School of Medicine, Indianapolis, 1925; served as Marion County deputy coroner and member of the medical staff of the Indianapolis Motor Speedway; associated with the Methodist and St. Francis hospitals, and the Community Hospital, where he died Jan. 26, aged 61.

Houloose, James Ⓜ Los Angeles; Rush Medical College, Chicago, 1920; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; veteran of World War II; for many years associated with the board of education of Long Beach; served with the Veterans Administration; died Jan. 11, aged 69.

Hubbard, Samuel Thatcher Sr. Ⓜ Hackensack, N. J.; University of Vermont College of Medicine, Burlington, 1907; specialist certified by the American Board of Ophthalmology; at one time secretary of the Bergen County Medical Society; on the staffs of the Holy Name Hospital in Teaneck and the Hackensack Hospital; died in the Veterans Administration Hospital, New York City, Dec. 23, aged 77.

Ives, Grace D. Ⓜ Great Barrington, Mass.; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1897; died Nov. 21, aged 97.

James, Theodoric V., Columbus, Miss.; Meharry Medical College, Nashville, Tenn., 1899; died in the Doster Hospital Jan. 15, aged 86.

Jefferson, James J., Johnstown, Pa.; born in 1874; Jefferson Medical College of Philadelphia, 1904; past-president of the Cambria County Medical Society, which in July, 1955, honored him for 50 years spent in the medical profession; at that time also was presented a plaque from the Medical Society of the State of Pennsylvania commemorating his long service as a physician; fellow of the American College of Surgeons; formerly surgeon of the Johnstown Plant, Bethlehem Steel Company, and Johnstown Works, U. S. Steel Corporation; for many years on the staff of the Conemaugh Valley Memorial Hospital; where he died Jan. 23, aged 84.

Johnson, Arthur Waldren Ⓜ Hales Corners, Wis.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1914; served overseas with the Canadian Army during World War I; fellow of the American College of Surgeons; associated with the Columbia Hospital and the Milwaukee Hospital, where he died Jan. 23, aged 69.

Jones, Ralph Roy Ⓜ Winchester, Ill.; Barnes Medical College, St. Louis, 1905; served as president of the school board; associated with the Illini Community Hospital in Pittsfield; died Dec. 14, aged 84.

Kapnick, Israel Ⓜ Providence, R. I.; Harvard Medical School Boston, 1938; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; a cancer consultant to the state department of health; associated with the Charles V. Chapin Hospital, Miriam Hospital, and the Roger Williams General Hospital; died in the Rhode Island Hospital Jan. 3, aged 45.

Kelly Leo Joseph, Ⓜ Trenton, N. J.; Georgetown University School of Medicine, Washington, D. C., 1935; certified by the National Board of Medical Examiners; served an internship at the St. Francis Hospital in Trenton and Fitzgerald–Mercy Hospital in Darby, Pa.; veteran of World War II; associated with the Wills Eye Hospital and the Philadelphia General Hospital in Philadelphia; died in Yardley, Pa., Jan. 30, aged 50.

King, William Franklin Ⓜ Indianapolis; Ohio Medical University, Columbus, 1898; for many years state health commissioner and secretary of the state board of health, and head of the first division of adult hygiene and geriatrics; a member of the planning committee of President Hoover's White House Conference on Child Health and Protection; wrote the constitution for the National Association of Nursing Homes and last year received a plaque

citing his service; past-president of the Indianapolis and state Exchange clubs; died in the Methodist Hospital Jan. 27, aged 84.

Kinnaird, Virgil Gibney Ⓜ Lancaster, Ky.; born in Lancaster Oct. 16, 1890; Jefferson Medical College of Philadelphia, 1913; served as councilor of the Seventh District of the Kentucky State Medical Association; member of the American Academy of General Practice; served overseas during World War I; honored by the Lancaster Junior Chamber of Commerce when he was designated as the "Outstanding Citizen of the Year"; past-president of the Garrard County Medical Society; past-president of the Lancaster Rotary Club; a director of the Centre College of Kentucky in Danville, where he served as a trustee for Kentucky School for the Deaf; served as chief of staff of the Garrard County Memorial Hospital; associated with the Ephraim McDowell Memorial Hospital in Danville; died Jan. 11, aged 68.

Kline, Samuel Ⓜ Sioux City, Iowa; Sioux City College of Medicine, 1908; served on the faculty of his alma mater; associated with the St. Joseph Mercy, St. Vincent's and Lutheran hospitals; died Jan. 22, aged 76.

Knight, Robert, Seneca Falls, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1902; veteran of World War I; health officer for the town of Seneca Falls and outlying districts, a position which he held for more than 30 years; formerly associated with the New York State Department of Health in Albany; on the staff of the Seneca Falls Hospital; died in Clifton Springs Jan. 12, aged 79.

Lamar, Richard Vanderhorst, Marietta, Ga.; University of Georgia Medical Department, Augusta, 1902; at one time on the faculty of his alma mater; formerly associated with the Rockefeller Institute in New York City; served on the staff of the Milledgeville (Ga.) State Hospital; died Jan. 22, aged 75.

Lawler, Edmund Griffin Ⓜ Chicago; Loyola University School of Medicine, Chicago, 1925; assistant clinical professor of pediatrics at his alma mater; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; chairman of the department of pediatrics at the Little Company of Mary Hospital, where he died Jan. 23, aged 59.

Lawrance, Jackson Stuart Ⓜ Reading, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; fellow of the American College of Surgeons; in January, 1956, was honored by the Berks County Medical Society for 50 years of practice and was given a plaque; veteran of World War I and was awarded the Distinguished Service Cross; served on the staff of St. Mary's Hospital in Philadelphia; associated with St. Joseph's Hospital, where he died Feb. 6, aged 78.

Leader, Pauline Marie, Lancaster, Wis.; State University of Iowa College of Medicine, Iowa City, 1894; for many years associated with the Clarinda (Iowa) State Hospital; died Feb. 7, aged 101.

Leet, H. Halbert Ⓜ Lexington, Ky.; born in Lexington March 5, 1911; University of Louisville School of Medicine, 1937; specialist certified by the American Board of Psychiatry and Neurology; member of the American Academy of Neurology and the American Psychiatric Association; veteran of World War II; assistant professor of industrial medicine at the University of Cincinnati College of Medicine; instructor of neuropsychiatry at the State University of Iowa College of Medicine in Iowa City from 1939 to 1941; assistant professor of psychiatry at the Graduate School of Social Work, University of Kentucky, 1941-1942; lecturer of neuropsychiatry and psychosomatic medicine, Graduate School of Social Work, Tulane University in New Orleans from 1943 to 1946; associated with St. Joseph, Good Samaritan, Central Baptist, and Our Lady of the Oaks hospitals; died Jan. 26, aged 47.

Leymeister, Martin L. Ⓜ Reading, Pa.; Jefferson Medical College of Philadelphia, 1935; interned at the Wilkes-Barre (Pa.) General Hospital; member of the American Academy of General Practice; past-president of the Berks County Medical Society; served in the medical reserve corps of the U. S. Army from July 1, 1953, to July 31, 1955; associated with the Community General Hospital, where he died Jan. 25, aged 49.

Lieberman, Louis Manuel Ⓜ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1930; veteran of World War II; associated with the Hospital of the University of Pennsylvania; died in Merion Station, Pa., Jan. 19, aged 54.

Linton, Charles Damon Ⓜ Walkerton, Ind.; Indiana University School of Medicine, Indianapolis, 1929; associated with the Holy Family Hospital, La Porte; died Dec. 30, aged 54.

Littlefield, Jesse Braxton Ⓜ Tucson, Ariz.; University of Texas School of Medicine, Galveston, 1922; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; veteran of World Wars I and II; on the staffs of St. Mary's Hospital, Pima County General Hospital, and the Tucson Medical Center; consultant, Southern Pacific and Veterans Administration hospitals, and the U. S. Air Force Station Hospital, Davis-Monthan Air Force Base; died Jan. 12, aged 60.

Lockman, William L., Dallas, Texas; Memphis (Tenn.) Hospital Medical College, 1909; served with the Indian Service; died Jan. 10, aged 79.

Lyon, Edward George Ⓜ Dallas, Texas; Memphis (Tenn.) Hospital Medical College, 1911; served as full-time assistant health officer of the city of Dallas; died in the Veterans Administration Hospital Jan. 4, aged 74.

McAdams, Peter Stevens Ⓜ Cambridge, Mass.; Harvard Medical School, Boston, 1899; associated with the St. Elizabeth's Hospital in Boston, where he died Jan. 23, aged 86.

McCracken, Arthur James Ⓜ Bellefontaine, Ohio; Medical College of Indiana, Indianapolis, 1901; veteran of World War I; for many years city health commissioner and county coroner; died in the Monmouth (Ill.) Hospital Jan. 31, aged 85.

Marcy, Charles Howard Ⓜ Allison Park, Pa.; born in Cambridge Springs March 16, 1889; University of Pittsburgh School of Medicine, 1914; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians, American Trudeau Society, and the American Clinical and Climatological Association; fellow of the American College of Physicians, of which he was ex-governor; clinical professor of medicine at his alma mater; lecturer, University of Pittsburgh Graduate School of Public Health; past-president and secretary of the Pennsylvania Tuberculosis Society; medical director of the Tuberculosis League of Pittsburgh; veteran of World War I; member of the consultant staff, Presbyterian and Woman's hospitals, and Pittsburgh Diagnostic Clinic; member of the senior staff, Columbia Hospital in Wilkinsburg and St. Francis Hospital; area consultant in tuberculosis of the Veterans Administration; medical adviser, Industrial Hygiene Foundation; died in the Allegheny General Hospital, Pittsburgh, Jan. 18, aged 69.

Martin, Dwight Clifford, Summit, N. J.; Harvard Medical School, Boston, 1903; formerly chief of the bureau of tuberculosis, New York City Health Department; served on the faculty of Fordham University School of Medicine in New York City; formerly on the staffs of the Municipal Sanatorium of the Department of Health, Otisville, Seton Hospital, where he was president of the medical board, Bellevue, Presbyterian, and Knickerbocker hospitals; died Feb. 4, aged 80.

Martin, Hallie Eugene, La Fayette, Ky.; St. Louis College of Physicians and Surgeons, 1918; died in Hopkinsville Jan. 18, aged 73.

Masters, Howard Russell Ⓜ Richmond, Va.; born in Fredericksburg, July 2, 1894; Medical College of Virginia, Richmond, 1919; associate professor of clinical psychiatry and neurology at the Medical College of Virginia, where he joined the faculty in 1919; lecturer of abnormal and normal psychology at the College of William and Mary, Richmond division, from 1927 to 1929 and lecturer in psychiatry from 1927 to 1932; specialist certified by the American Board of Psychiatry and Neurology; past-president of the Tri-State Medical Association of the Carolinas and Virginia Neuropsychiatric Association, and the Mental Hygiene Society of Virginia, which he helped organize; member of the Endocrine Society, Richmond Academy of Medicine, and the American Psychiatric Association; a member of the Kappa Sigma, Omicron Delta Kappa, and Phi Chi fraternities; since 1926 member of the governor's advisory board on mental hygiene, Richmond; veteran of World War I; past-president and vice-president of the Memorial Guidance Clinic, and a member of its board since 1933; in 1953 appointed to the college of electors for the Hall of Fame of Great Americans; psychiatrist for the Virginia State Penitentiary from 1927 to 1930; associated with the Tucker Hospital, where he was president, Johnston–Willis, Sheltering Arms and Crippled Children's hospitals, and the Medical College of Virginia, Hospital Division; past-president of the Randolph–Macon Alumni Association; in 1956 the Randolph–Macon College awarded him an honorary L.L.D. degree; died Jan. 27, aged 64.

Meyerding, Edward August Ⓜ St. Paul; born in St. Paul Dec. 25, 1879; University of Minnesota College of Medicine and Surgery, Minneapolis, 1902; served as director of the division of hygiene and special classes of the public schools of St. Paul for fifteen years; for many years an executive secretary of the Minnesota Public Health Association and secretary of the Minnesota State Medical Association; on June 30, 1938, at the annual banquet of the state association, was presented with the society's first Distinguished Service Award created by its house of delegates, to be presented on occasion in recognition of special service to the association; past-president of the Mississippi Valley Conference on Tuberculosis; member of the House of Delegates of the American Medical Association from 1935 to 1936 and in 1939; in 1956 received the William G. Anderson Service Award of the American Association for Health, Physical Education and Recreation for his work with Minnesota school children; served during World War I and later was promoted to the rank of colonel in the reserve; organizer of the Minnesota Trudeau Society; member of the American College of Chest Physicians and the American Trudeau Society; died in St. Luke's Hospital Jan. 23, aged 79.

Mikolanda, Otto, Lorain, Ohio; University of Wooster Medical Department, Cleveland, 1903; for many years police surgeon; veteran of World War I; died in Millersburg Jan. 5, aged 78.

FOREIGN LETTERS

AUSTRIA

New Uses for Iproniazid.—At the meeting of the Society of Physicians in Vienna on Jan. 23, Dr. A. Pletscher stated that iproniazid inhibits the enzyme, monoamino oxidase (MAO), which is important in the decomposition of such monoamines as 5-hydroxy tryptamine (5HT) and pyrocatechol (CA). MAO-inhibitors of the hydrazine type (including iproniazid) which produce a long lasting effect are characterized by (1) a long-lasting increase of 5HT and CA in various organs (brain, heart, blood, and intestine); (2) an increase of 3-0-methyl levarterenol in the brain and a decrease of 5-hydroxy indoleacetic acid excretion as well as 3-methoxy-4-methoxy mandelic acid excretion in the urine; (3) increase in the rise of 5HT and CA, respectively, in the brain, depending on 5-hydroxy tryptophan (5HTPN) and dihydroxyphenylalanine (DOPA); (4) intensification of the central pharmacological effect of 5HTPN and DOPA (excitement and hyperthermy); and (5) antagonism against the reserpine-conditioned decrease of 5HT and CA in the brain, as well as against various pharmacological effects of reserpine on the central nervous system. It is probable that the clinical effects of iproniazid and its related compounds are partly based on MAO-inhibition too.

Dr. J. L. Rivier reported on 75 patients with angina pectoris who had been treated with iproniazid for 5 to 14 months. The initial dose was 50 mg. a day. The dose was increased every three to four days by 25 mg. to a maximum of 150 mg. a day. The effective dose was often found to be 75 to 100 mg. a day. In 50% of the patients pain subsided entirely; 25% of the patients were much improved; 16% were not improved; and 9%, all of whom had old and severe coronary lesions, died during treatment. A toxic effect of iproniazid should be excluded in these cases of death. The possibility of an orthostatic hypotension which can be elicited by iproniazid and might present a danger, at least theoretically, should always be considered. For this reason it was suggested that all patients be examined regularly and that the doses be increased gradually. Twenty-two patients with anginal pain on exertion were able to increase their physical activity with comfort during treatment and their electrocardiograms did not show any exacerbation.

Dr. H. Fleischhacker reported on 18 selected patients with angina pectoris who were given iproniazid. His results confirmed those of the previous speaker. The preparation proved to be effective only in patients with unequivocal typical attacks of angina pectoris based on severe coronary sclerosis. In others only moderate improvement was noted. Subjective cardiac complaints and sequelae of decompensation were not improved. In no case was a change of the electrocardiogram during or after treatment observed. Cardiac and other necessary treatments were given as indicated. The known side-effects were not observed in these patients. This was attributed to the fact that initial doses of only 25 mg. were given and that the dose was increased gradually to 25 mg. three or four times a day. The patients usually took this treatment for three to five weeks, the longest treatment being for four months, during which time the patient received 50 mg. daily. Special consideration was given to the evaluation of injurious effects of iproniazid on the liver. Results obtained from the serum lability test and from palpation were closely observed and in 12 patients liver biopsy specimens were examined. No evidence of liver damage was observed.

Dr. O. Zimmermann-Meinzingen gave iproniazid to 16 patients whose anginal pain was refractory to other forms of treatment. A detailed report was given on 10 of these patients whose treatment had been terminated. Of five of these whose angina pectoris was caused by coronary sclerosis two showed good improvement, two moderate improvement, and one no improvement. Two of these 10 patients had persistent angina pectoris after infarction, 1 of whom showed good improvement and 1 moderate improvement. Two others had persistent angina pectoris in the course of infarct formation, of whom one showed good improvement and one moderate improvement; and one patient who had coronary and valvular mesaortitis showed no improvement. These results were considered most encouraging and persisted after discontinuation of the other therapy aimed at dilation of the coronary vessels. A lasting favorable effect also persisted after iproniazid was discontinued. When last seen these patients were getting along well with small doses of vasodilators. No unfavorable circulatory changes were observed in those who were confined to bed. The blood pressure was not affected.

Dr. H. Walter-Büel of Münsingen reported on the use of iproniazid in the treatment of the psychoses, the treatment of which has changed greatly

The items in these letters are contributed by regular correspondents in the various foreign countries.

since the introduction of chlorpromazine and reserpine in 1952. This change of treatment was concerned primarily with schizophrenic and organic psychoses. In the treatment of depressive states a similar change is now taking place with the use of iproniazid and imipramine. The speaker had used these preparations on more than 200 patients. Favorable results were obtained with iproniazid in 65% of those with menopausal, involutional, fixed psychoreactive, asthenic, and hypochondriac depressions. The drug was only slightly effective in patients with schizophrenia if they did not show a depressive component. Some loosening of the patient's frame of mind with increased activity became notable occasionally after several days, and more frequently after three to four weeks. This was often associated, although not strictly correlated, with an increase in appetite and body weight. Undesirable side-effects included vertigo, nausea, tendency to collapse, constipation, disturbances of sleep, occasionally disturbances of micturition and potency, and hyperreflexia. With a gradually increased dosage, not exceeding a daily dose of 150 mg., these side-effects remained mild. A comparison of iproniazid with imipramine is not easy. One or the other may be more effective in a single case, the factors of which are often complex. Supervision of the treatment by the physician is indispensable in view of the danger of suicide and because of the side-effects.

Dr. C. G. Tauber of Bern, Switzerland, reported on a series of more than 300 psychiatric patients, 134 of whom had been treated with iproniazid for 6 to 18 months. The drug was highly effective in 65% of those with depressive states of various origin. The best results were obtained in patients with endogenous depression, 85% of whom showed improvement. In many patients iproniazid therapy may be an adequate substitute for electroshock therapy and is not as frequently followed by recurrence as electroshock therapy. In about 10% of the patients, too early withdrawal of the drug was necessary because of a tendency to collapse or too strong a psychic action. About 10% of the patients were therapeutic failures. With a maximal daily dose of 150 mg. and with careful adaptation of the dosage, the side-effects were controllable or could be compensated by the administration of other drugs with a symptomatic action. Severe accidents, such as liver damage, did not occur among the 300 patients. The duration of treatment varied from three weeks to over nine months. Careful establishment of indications is indispensable for ambulatory treatment with iproniazid (all agitated patients are excluded) and so is continued supervision. Psychotherapeutic care and guidance is also important. New drugs with an analogous action are being developed.

Dr. V. E. Frankl reported that a woman with a phobic condition, who was undergoing psychotherapy, returned one day and stated that psychotherapy was no longer necessary since suddenly she had become free of fear and that this happened when she had to take iproniazid for tuberculosis. Since then he has treated 18 psychiatric patients with iproniazid, some of whom had been under observation for many years. In one of these patients the effect of the drug could be compared only with the therapeutic effect resulting from electroshock which the patient had been given several years previously. A woman with a compulsion neurosis of long standing, after taking iproniazid, described the characteristic effect of a so-called pharmacological leukotomy, which is known to result from the administration of certain tranquilizers or from such adrenergic agents as amphetamine. In this patient the effect of the pharmacological leukotomy was far superior to that of a surgical bilateral leukotomy which the patient had undergone earlier.

BRAZIL

Bleeding Time.—Dr. Cecy Barros and co-workers at the Hospital das Clinicas in São Paulo found that between the fingers and the lobes of the ears there is a significant difference in bleeding time, but there is no difference between the right and the left side of the body. On different days, in the same person, the bleeding time may show a significant difference. The mean bleeding time, in 100 normal subjects, was 1.75 ($\pm$ 0.27) minutes. The bleeding time when prolonged, in almost every instance, indicated platelet deficiency. There were cases, on the other hand, with platelet deficiency and normal bleeding time, and some with a normal platelet count and prolonged bleeding time. The bleeding time, by itself, is not an index of the hemostatic capacity of the vascular and blood systems. In addition one needs a platelet count, a tourniquet test for vascular fragility, and other tests.

Uterine Rupture After Cesarean Section.—Drs. Antônio Guariento and co-workers at the Hospital Leonor Mendes de Barros in São Paulo studied a series of 855 patients who had had a previous cesarean section; 341 of them had a total of 401 iterative cesarean sections and the remaining 514 had 744 vaginal deliveries. In this entire series 30 uterine ruptures occurred in and 6 outside the hospital. In 9 of the 36 the scar was that of a classical cesarean section, and in 27 of a section in the inferior segment of the uterus. In 10 patients the rupture was diagnosed and a laparotomy was promptly performed. The classical symptoms and signs are often absent, and the diagnosis is sometimes made only during another cesarean section or by examination of the cavity after a vaginal deliv-

ery. The presence of meconium in a bloody urine indicates uterine rupture complicated by injury to the bladder. In spite of blood transfusion, improved anesthesia, and antibiotics, uterine rupture is still a serious threat to both mother and child. In this series there was one maternal death, in the third day of puerperium, and 15 fetal deaths. Conservative surgical measures such as hysterorrhaphy should be used whenever possible. If conditions do not allow it, a subtotal hysterectomy best serves the interests of the mother. The authors performed 31 hysterorrhaphies and 5 subtotal hysterectomies. They do not favor routine sterilization but treat each case on its merits.

CANADA

Society for Clinical Investigation.—At the annual meeting of the Canadian Society for Clinical Investigation in Vancouver, British Columbia, D. M. McLean of Toronto pointed out that few of the so-called nonparalytic cases of poliomyelitis in that area had been associated with poliovirus. In 1958 a common finding in children with aseptic meningitis in Toronto had been the isolation of Coxsackie virus B5 from feces samples. Enterovirus infection had also been responsible recently for a wider variety of syndromes, including pericarditis but not isolated myocarditis as found in southern United States.

D. Fraser of Toronto had studied two children with hypophosphatemic–vitamin D refractory rickets and found nothing wrong with the renal tubules. He thought that the excessive renal clearance of phosphorus was the result of secondary hyperparathyroidism, possibly due to defective intestinal absorption of calcium. D. McPherson of Vancouver had performed calcium infusion studies on normal subjects and patients with osteitis deformans and suggested that the labile storage pool of calcium in the skeleton was abnormally large in this disease with a faster bone blood flow of calcium.

P. Constantinides of Vancouver described a sulfated polysaccharide, known as Paritol-C, as a promising agent for the control of hyperlipemia. Given intravenously in nine patients with hypercholesteremia and hyperlipemia, it normalized the serum lipid levels in eight and the serum cholesterol levels in five, and resulted in clinical improvement. E. McGarry of Montreal had produced antibodies to anterior pituitary hormones in animals and found on immunochemical evidence that porcine, human, and bovine growth hormones were species-specific. Such antigen-antibody systems could be used to measure the levels of anterior pituitary hormones in body fluids. E. H. Venning of Montreal measured in vitro secretion of steroids from adrenal glands obtained from patients with pituitary basophilism or virilization. Adrenals from patients with virilization secreted less hydrocortisone and cortisone than did those from patients with pituitary basophilism, and there seemed to be an increased production of 17-ketosteroids in the virilizing syndrome.

J. C. Laidlaw of Toronto described experiments designed to relate findings of changes in steroid secretion during pregnancy with sex-hormone changes. Women with adrenocortical hypofunction who were taking hydrocortisone were given estrogen and progesterone. Estrogen administration produced no increase in hydrocortisone secretion in these, or in normal subjects who were given ACTH, but caused the same changes in metabolism of the steroid as occur in pregnancy. Progesterone did not cause these changes, and it was concluded that the alterations in hydrocortisone disposition in pregnancy are largely due to increased estrogen secretion. W. I. Morse of Halifax, Nova Scotia, showed that whereas oral tolerance of glucose was impaired in obesity of long standing, there was no difference between obese and normal subjects as regards intravenous glucose tolerance. The abnormal results in the oral test were not due to impaired glucose removal. R. A. Palmer of Vancouver made a plea for rectal administration of carboxylic acid resins in the control of hyperkalemia. In 17 patients with acute or chronic renal failure 25 Gm. of the resin mixture given by high enema at 4-hour to 12-hour intervals proved an efficient method of removing potassium. H. Cross of Kingston, Ontario, gave large rapid infusions of magnesium sulfate to hypertensive and normal subjects, noting a drop in blood pressure in the hypertensive but not in the normal subjects and an increased urinary excretion of calcium, sodium, and chloride ions but no change in phosphorus excretion. The hypertensive subjects showed increased excretion of potassium and increased glomerular flow rate and renal plasma flow. A. S. V. Burgen of Montreal followed the fate of intravenously injected radiomagnesium in the body. A rapid urinary excretion gave place to a slower one, with a total turnover time of 115 minutes. The site of the rapidly exchangeable magnesium is unknown, but the slowly exchangeable magnesium must be in skeletal muscle or bone. Serum magnesium was a poor indicator of the 24-hour exchangeable magnesium.

College of Physicians and Surgeons.—At the 28th annual meeting of the Royal College of Physicians and Surgeons of Canada in Vancouver, British Columbia, N. M. Lefcoe of London, Ontario, demonstrated a high degree of correlation between the timed vital capacity in patients with chest disease and the radiologist's assessment of the presence of emphysema, but the presence of a contracting lung lesion destroyed the correlation. E. R. Yendt of Toronto discussed the diagnosis and treatment of

20 patients with renal hypertension, and stressed the value of differential tests of renal function in diagnosis. In essential hypertension there was less than 10% difference in the volume and sodium concentration of urine secreted by the two kidneys, whereas in renal arterial disease the volume showed 50% difference and the sodium concentration 15%. A. E. Thomson of Winnipeg, Manitoba, stressed two problems in the treatment of acute renal failure: (1) use of adrenergic blocking agents to overcome peripheral vasoconstriction (he had used phenoxybenzamine at the onset with success); and (2) the difficulty of dealing with potassium intoxication, particularly as seen in traumatically injured patients. R. C. Dickson of Halifax, Nova Scotia, reported the successful use of potassium perchlorate as a thyroid depressant in hyperthyroidism and in euthyroid persons with angina pectoris. With a dosage of 200 mg. five times a day toxic effects were few. The drug was also of diagnostic value in struma lymphomatosa. H. McIntosh of Vancouver conducted a search for parathyroid tumors, particularly in patients with recurrent renal calculi, and recommended the intravenous infusion of calcium as a diagnostic aid. In the normal person the serum phosphorus level rises and the urinary phosphorus level falls, but in hyperthyroidism the serum phosphorus level does not rise.

J. A. Dauphinee of Toronto warned that hepatolenticular degeneration might be mistaken for paralysis agitans, and urged the examination of the eyes by slit lamp as a screening measure. In treating these patients penicillamine was more effective in removing copper than dimercaprol, but it might deplete the body of other trace elements. J. B. Dosseter of Montreal described the medical aspects of the first successful renal transplantation in Canada, performed on identical twins. Secretion of urine began almost as soon as the donor kidney had been sutured in place. Bilateral nephrectomy was performed five months later. Six weeks after the first operation the patient was ambulant and free from symptoms. P. Constantinides of Vancouver induced atheroma in rabbits by cholesterol feeding and showed that stilbestrol arrested the progress of the lesions, while vanadium and starvation had no effect, and linoleate had a partial effect. Stilbestrol caused toxic liver effects in half the rabbits. G. Monckton of Edmonton, Alberta, found in a patient with familial periodic paralysis that potassium was not stored in the liver as had been suggested by radioactive potassium studies but that before and during attacks of paralysis there was marked sodium retention with a drop in urinary sodium. A diet low in sodium controlled the paralysis.

W. Pisesky of Edmonton had found in experiments on rats that triethylene thiophosphoramide retarded wound healing, while norethandrolone counteracted this. K. S. Morton of Vancouver followed up 62 patients with traumatic dislocation of the hip and noted that the chief factors determining the result were severity of injury and delay in reduction. F. P. Dewar of Toronto analyzed 145 fractures of the carpal scaphoid and showed that, provided such a fracture was immobilized in plaster, it was difficult to prevent it from healing. Conservative treatment is the only acceptable one, even with missed fractures. T. K. Goodhand of Winnipeg had replaced an entire ureter in dogs with an ileal loop, removed the contralateral kidney, and killed the animals 4 to 12 months later. The isolated loop was a satisfactory substitute for the ureter, and it seemed better to replace all rather than part of the latter. The blood urea level soon returned to normal and chloride reabsorption by the ileum was not a problem.

Vitamin C-Fortified Milk.—Last year a series of cases of infantile scurvy was reported from Toronto and Winnipeg. Medovy recommends (*Canad. M. A. J.* **80**:213, 1959) that all evaporated milk be fortified with vitamin C in view of the decline in breast feeding, the reluctance of some mothers to give orange juice, and the general confusion in the lay mind about vitamin concentrates. One firm has produced a milk incorporating 75 mg. of ascorbic acid per 15-oz. can, and the product has been subjected to rigorous tests in the Winnipeg Children's Hospital without loss of vitamin C content. Two patients who had scurvy were treated solely by the fortified milk, with prompt clinical improvement supported by radiologic evidence.

Prepaid Optometry.—A complete plan for optometry on a prepaid basis has recently been started by the Canadian Association of Optometrists, which has organized a nationwide nonprofit organization called Canadian Optometric Services, Inc., operating under a government charter. Commercial, industrial, or professional groups can enroll, and services include examination, refraction, and provision of lenses and frames. The subscriber has a choice of optometrists. The cost of plans will vary depending on their type and extent of coverage, but a basic plan is expected to run at 65 to 80 cents per person per month.

Prescription Insurance.—Another experiment in prepaid care started in March, 1958, in Essex County, Ontario, when Prescription Services, Inc., began as the first known pharmaceutical prescription plan in Canada. It serves an area with a population of 200,000, and agreements with all but 7 of the 75 pharmacies involved have been signed. A progress report on the first six months shows that of 548 persons enrolled in the last month 104 had 211 prescriptions filled with an average ingredient cost of $1.86 and average retail price of $3.72. Organized labor has been favorable to the new plan, but management has been frank in its opposition to

providing another fringe benefit for employees. Sponsors believe that the plan can succeed with slight modifications.

Schizophrenia.—Osmond and Hoffer recently reviewed research into the chemical nature of schizophrenia (*Canad. M. A. J.* **80**:91, 1959). Steps in the studies included recognition of a relation between mescaline intoxication and acute schizophrenia; discovery of the relation between the chemical constitution of the former and that of epinephrine; reports by some asthmatics that when their epinephrine for self-administration turned pink they experienced hallucinations after its use; and the discovery that one of the products of pink epinephrine was adrenochrome, which in normal subjects produced schizophrenic sensations. Another breakdown product of epinephrine is adrenolutin, and either of these breakdown products may prove to be the naturally occurring mescaline-like substance responsible for the sensory changes in schizophrenia. It has also been shown that schizophrenics are less able to remove adrenochrome from the blood than are normal persons. It seems that d-lysergic acid (LSD-25) retards the destruction of adrenochrome and permits its accumulation in the body.

INDIA

Mongolism.—Dayal and Agarwal (*Indian Journal of Child Health*, vol. 7, December, 1958) stated that mongolism is not so uncommon in this country as is usually believed. They observed 18 cases in children between 3 months and 11 years of age, all of whom showed microcephaly and brachycephaly. Thinning of the skull bones was evident in 12, and 2 also showed nonclosure of sutures. The fingers and toes showed the deformities commonly described, i. e., increased space between the first and second digits, short digits, and a short terminal phalanx of the fifth digit which was turned inward. The sole and palm creases showed deviations from normal in about half the patients. Macroglossia was a universal feature, the tongue showing fissures and conforming to the "scrotal type" in most patients, although in seven there were no fissures on the tongue. In 16 the ears were small and turned forward. An interventricular septal defect could be diagnosed clinically in only one patient. This was later confirmed by x-ray and electrocardiogram. The typical oblique palpebral fissures and epicanthic folds were present in all patients. In one the orbits were winged and obliquely set and one had nystagmus. Congenital cataract was present in two and strabismus was seen in one.

All the children showed severe mental retardation and the various milestones in the physical development were delayed. No correlation could be detected between parity, parental age, and idiocy, and there was no history of such maternal illnesses as mumps, influenza, or rubella in any of the cases. Consanguinity was found in one case only. Thus, in this study, late closure of fontanelles and persistence of frontal sutures was not a frequent finding as is commonly described and no widening of fissures and foramina could be demonstrated. No common etiological factors could be established.

Tetralogy of Fallot.—R. H. Betts and co-workers (*Indian Journal of Surgery*, vol. 20, December, 1958) stated that the clinical findings in patients with the tetralogy of Fallot are variable. The two dominant lesions are the pulmonic stenosis and the interventricular septal defect. The authors operated on 79 patients with this condition and 13 died. An autopsy was performed on 11, and it was concluded that such patients, operated on before the age of 3, suffer from an extreme degree of disability. The authors usually deferred the operation when there was a possibility that the child would live to the age of 3 or older. All risks are increased in infants and the death rate in children below 3 years of age in this study was 50% as compared to 12.5% for those above 3. Angiocardiography and cardiac catheterization were not usually performed on the severely incapacitated child under 3 years of age as they were believed to increase the risk. This measure may, however, be justifiable in some cases in order to determine the exact site of obstruction preoperatively so that the proper operation can be planned. This is especially important in children who are not good subjects for the Blalock operation due to a small subclavian artery, in which case a Pott's operation, if there is a left aortic arch, or a direct pulmonic valvotomy, if the obstruction is predominantly valvular, would be advisable. The pericardium was not opened routinely but the extent of the pulmonary stenosis was assessed by feeling for the cone of the pulmonary valve and the easily obliterated thrill through the intact pericardium.

The most frequent cause of death in this series was faulty postoperative management. Cerebral thrombosis is a common complication in deeply cyanotic patients and its risk increases if there is marked dehydration. This complication developed in four patients, two of whom died. Three other deaths were due to errors in management—one patient developed atelectasis of the left lung which progressed to early bronchopneumonia, another developed a severe diarrhea, and one had a persistent paralytic ileus. On the 5th postoperative day a laparotomy was performed on the last mentioned patient. No cause for the ileus was found. The gastric aspiration tube became blocked on the next day and a large amount of material was vomited. Some of it was aspirated and the child died soon after. In three of the fatal cases, there was an error in diagnosis. One child, less than 2 months of age,

was believed to have tetralogy of Fallot and cerebral thrombosis. Pott's operation was performed but the child died after two weeks and at autopsy was found to have not a tetralogy but a transposition of great vessels with a small interventricular septal defect. The cerebral symptoms were due to the presence of a large porencephalic cyst which was the cause of death.

Another patient was found to have pulmonic stenosis only and should have had a valvotomy instead of a shunt operation. The third patient was diagnosed preoperatively as having pulmonic stenosis with an atrial septal defect. At operation he was thought to have both valvular and infundibular stenosis and a pulmonary valvotomy was performed. Autopsy showed that, instead of a pure pulmonic stenosis, the child had a tetralogy of Fallot with valvular and infundibular stenosis, an atrial septal defect, and a patent ductus arteriosus. In two patients errors in operative technique caused death. In one, a Blalock type of anastomosis was performed but was inadequate as the left pulmonary artery was extremely small and friable. The anastomosis was occluded by a thrombus. An anastomosis should have been done on the right side as the right pulmonary artery was of normal size. A preoperative angiocardiogram would have helped in this case. In the second case laceration of one of the cusps of the aortic valve was produced accidentally by the valvulotome and caused an aortic insufficiency which contributed to the patient's death.

Errors in choice of operation accounted for two deaths. One was thought to have a pure pulmonic stenosis and a valvotomy was performed, but he had a tetralogy of Fallot and should have had a shunt operation. Another was an infant of 7½ months and a Blalock operation was performed. The vessels were small and at postmortem the anastomosis was found to be completely occluded by a thrombus. The child also had a combination of valvular and infundibular stenosis and a valvotomy would have given him enough relief so that a shunt operation could be done when he was older. In two the cause of death could not be determined and associated defects probably contributed to the death of others. Thus one child of 7½ months had a right aortic arch and a marked dextroposition of the aorta. The second had an extreme dextroposition associated with a diminutive pulmonary artery. Two others had peculiar valve-like structures within the interventricular septal defects, causing obstruction to the blood flow and imposing an additional burden on the right ventricle.

National Register—The government is compiling a national register of all qualified scientific and technical personnel of the country. The purpose of this register is to provide comprehensive and authoritative information on national resources of scientific and technical manpower; to serve as a clearing house for information on resources of and requirements for scientific and technical manpower; to develop a special section of the register to maintain current information on Indian nationals studying or working in technical fields in foreign countries; to provide information on persons having highly specialized training and experience, when an appointing authority finds it difficult to get suitable candidates to respond to public advertisements; and to assess the gaps in the training and utilization of scientists and technologists through technical manpower research. The National Register Unit prepares study reports based on the information contained in the register. The register lists those (1) holding at least a postgraduate degree in a science, (2) holding at least a bachelor's degree in agriculture, veterinary medicine, and other fields, (3) holding a degree in engineering and technology, and (4) who are medical specialists.

Hypothermia in Surgery.—Saini and Bett (*Indian Journal of Surgery*, vol. 20, December, 1958) used hypothermia of various degrees in 98 patients, cooling the skin surface by blankets. Of these, 66 had tetralogy of Fallot and hypothermia was used to improve the operative risk. Many were deeply cyanotic and many had rapid pulse rates. The range of temperature varied from 92 to 88 F. Six patients with pulmonary stenosis were also operated on under hypothermia. Hypothermia here was used as an adjunct, as it was also in another group of nine patients with acquired heart disease. The operative mortality under ordinary anesthesia is high in such cases; three of five patients with mitral stenosis were saved by operation under hypothermia. The remaining four had constrictive pericarditis and hypothermia helped to reduce the operative risk. Hypothermia was also used in operations where local occlusion of circulation was necessary. The total number of deaths in the whole series was 18, and of these 4 could be attributed to hypothermia. One patient with mitral stenosis developed ventricular fibrillation; cardiac arrest occurred in a patient with atrial septal defect; excessive bleeding from the surface of the heart led to death in a patient with constrictive pericarditis; and an apparently acidotic syndrome proved fatal in a patient with atrial septal defect.

Vasectomy for Sterilization.—Ohri and Jhaver (*Indian Journal of Surgery*, vol. 20, December, 1958) studied the changes in the testes of rats and men after vasectomy. The first 50 operations on human subjects were by the standard two-incision technique under local anesthesia. Later, one central scrotal incision was used, about 1 cm. in length, through which bilateral vasectomy was done. Patients were not admitted to hospital and contraceptives were advised for about six to eight weeks,

after which the semen was examined for living spermatozoa. They were followed up for six months to four years.

Old male rats were used for the experimental study. They were divided into three groups. The testes were removed from the first group for histological examination. The second group served as controls, their testes being removed for study at the end of six months, and in the third group, vasectomy was performed and the rats subjected to orchiectomy at varying intervals. Study of the whole group covered about six months. The rats in the first and second group showed normal testicular tissue on histological examination with active spermatogenesis, thus showing absence of change in the second group due to age during the period of experiment. In the third group, within two weeks after the operation, the seminiferous tubules started showing degenerative changes associated with congestion of the stroma. The degenerative changes increased for the first eight weeks. Eight weeks after the operation, the appearance was striking, consisting of islands of normal seminiferous tubules surrounded by degenerated tubes and vice versa, representing active regeneration of a focal type. The interstitial tissue, from the 10th week on was more noticeable, its proliferation being marked toward the end of the experiment.

After vasectomy in men, 6 complained of diminution of sexual capacity, 86 noticed an increased sexual strength and desire, and 198 claimed that their sexual power remained unchanged. There was weight loss in 18 patients after operation, no change in weight in 160, and a gain in 112. Relief from the anxiety from further additions to the family was probably the cause of the pleasant mental reaction to the operation, which was in some cases associated with increased sexual capacity; 268 felt very happy after the operation. The reaction of the wives of these men varied; 96 felt happy because of freedom from further childbearing, 190 showed no particular reaction, and 4 reported conception after the operation. Failure of the operation in controlling conception was specially noticed in cases where plain catgut was used to ligate the two ends of the vas, rapid absorption of which probably allowed reestablishment of the lumen.

Viral Encephalitis.—Mathur and Prasad (*Journal of the Indian Medical Association*, vol. 32, Jan. 16, 1958) analyzed a series of 161 cases of viral encephalitis seen in an epidemic, July to September, 1958. The peak was reached between July 7 and 21. The largest number of deaths however were reported in the last week of September. Persons belonging to both upper and lower economic strata were affected. Often more than two members in the same family were attacked. There was no report of person-to-person transmission in the hospital wards. Most of the patients (89%) were below 8 years of age (range 1 month to 35 years). The onset was usually sudden, with restlessness, vomiting, diarrhea, and a temperature of 102 to 105 F (38.99 to 40.56 C). Convulsions and twitchings then appeared, the child talked incoherently or became delirious, and lapsed into semiconsciousness or unconsciousness. The fever was most commonly continuous or remittent but in some it was intermittent. It returned to normal by lysis. A secondary rise was seen in 15.5% of the patients after a complete remission lasting two to four days; 1.8% also showed a tertiary rise of temperature. Two patients showed blindness and one had dimness of vision. One had myoclonic movements and two developed tremors of a rhythmic Parkinsonian type which disappeared on recovery. Two patients showed spastic paraplegia at the onset and one had a flaccid paraplegia. Two had hemiparesis. None of these had any residual effects after recovery.

More than half the patients had nuchal rigidity with a positive Kernig's sign and 42.2% had an extensor plantar reflex. Pulmonary involvement was common and three patients died of acute pulmonary edema. Ophthalmoscopic examination in 60 patients revealed optic neuritis in 3 and pallor of the disks in 2. Clinically the patients could be divided into a fulminant (34.8%), moderate (33.5%), and mild (31.6%) type. More than 67% had polymorphonuclear leukocytosis. A low blood sugar level was found in only 15%. The cerebrospinal fluid was under increased pressure on lumbar puncture in 76%. The most common change was pleocytosis to the extent of 5 to 50 cells. In addition to symptomatic treatment, the patients were divided into seven groups and given different drugs (tetracycline, penicillin, chloramphenicol, ACTH, a combination of tetracycline and ACTH, ACTH with penicillin, and normal saline solution). The results with normal saline solution (given intramuscularly) and ACTH alone were the best. There were 45 deaths, giving a mortality of 27.9%. Among the 112 patients who were discharged as cured, 8 had a relapse. No residual effects were noted in about 70% of those who were discharged as cured and could be followed up for one to three months.

NORWAY

Iproniazid for Psychosis.—Haug and Kolstø (*Nord. med.* **60**:1789-1794 [Dec. 11] 1958) treated 22 chronically psychotic male patients with iproniazid. Most of these patients were schizophrenics. All of them presented long-standing apathy and/or depression, with little or no variation in the clinical course of their illnesses. The patients were given 50 mg. of iproniazid three times a day for 10 weeks. Significant changes in behavior were observed in 16, and in 6 no changes were noted. With the exception of one patient who became more depressed, all showed a definite increase in the general activity level and an elevation of mood. From a practical clinical point of view, however, only 6 could be classified as improved; 10 became overtly aggres-

sive and hyperactive to an extent that made them difficult to manage in the wards. In several, hallucinations were intensified. During the trial period, treatment was discontinued in 7 and the dosage reduced in 11 because of severe psychiatric and somatic complications. One patient was on the verge of delirium. One developed melena. Another, who had never shown signs of heart disease, died of myocardial infarction. Hypotension, dizziness, and fainting occurred in some. Hyperreflexia, constipation, and anemia were common but not severe. Chromatographic analysis of the spinal fluid of five patients showed an increase of the albumin fraction. The authors cautioned against uncritical use of iproniazid to activate chronically psychotic patients. The drugs tended to reactivate violent psychotic outbursts, repeating the acute early phases of the illness, and its use was complicated by widespread disturbing and dangerous somatic complications. Further study is needed before the usefulness of the drug in the treatment of chronic psychotic patients can be determined.

SWEDEN

Endocrinological Institute.—The only hospital department in Europe specializing in endocrinological research was inaugurated in January at the Stockholm Carolinian Hospital, under the chairmanship of Professor Rolf Luft. One half of the floor space is occupied by laboratories. The most important task of the new institute will be further research in endocrinology. Important projects include studies on diabetes, thyroid diseases, and hormone treatment of certain types of cancer.

Protons Used in Brain Surgery.—Proton rays were used in brain surgery at the Upsala University in December. Now the operation has been judged successful. The patient was a 55-year-old man suffering from chronic depression, and the operation was the result of close teamwork between neurosurgeon, histopathologist, radiologist, and the personnel of the synchrocyclotron department of the institute. Experiments with the use of a proton ray as a surgical instrument were first made at the University of California in Berkeley, where a different procedure from the one used at Upsala was followed. This operation, the first of its kind on a human being, was preceded by extensive animal experiments on mice, rabbits, and goats which were subjected to careful pathological examination in order to ascertain the possible after-effects. The results were reassuring. Professor Lars Leksell, a neurosurgeon of Lund University, believes that the method will be specially useful for treatment of chronic pain, paralysis agitans, and certain psychic disorders.

The protons, with an effect of 190 million electron volts, cut off deep-lying nerve paths in the brain. The advantages over conventional brain operations is that this procedure diminishes the hazards and complications involved and shortens the time of recovery. The new type of operation is not painful and takes place without anesthetics. Hospitalization is not required. The Upsala patient was in touch with the operating team by means of a microphone, the operating crew watching the procedure by television in order to avoid being subjected to ionizing radiations. The treatment was interrupted about 40 times to change the angle of approach of the ray, and the patient was thus never alone more than about a minute at a time. Dr. Börje Larsson was the nuclear scientist responsible for the instruments used. The new method is not likely to be generally used for many years. Several such operations, however, have been planned.

UNITED KINGDOM

Reducing Tablets.—Drs. A. Foster and C. Seager of Barrow Gurney Hospital are compiling data for the Poisons Board on the use of reducing tablets, which they claim are producing drug addicts. Women pay an average of $1 weekly for the tablets, which are sold at the rate of one million a month. The Poisons Board is considering making a number of reducing preparations available only on prescription. A woman recently appeared before the courts accused of forging doctors' prescriptions to get reducing drugs, which she had been taking for five years. Her weight had dropped from 154 to 84 lb. (69.9 to 38.1 kg.), and she suffered from severe insomnia. She finally concluded that it was "better to stay fat and happy."

Electronic Pacemaker Sutured into the Heart.—One of the major hazards of open-heart operations for the closure of ventricular septal defects is damage to the conduction mechanism and consequent heart block. This has been dealt with by Ross and co-workers by direct stimulation of the ventricles by an electrode sewn into the heart and connected to a pacemaker (*Lancet* **1**:392, 1959). A 7-year-old girl was operated on by Sir Russell Brock for closure of a ventricular septal defect. A complete cardiac bypass was maintained for just over 30 minutes, and the heart was arrested for this period with potassium citrate. The defect was closed, but shortly afterward fibrillation and finally heart block occurred. The bared ends of two electrodes, one acting as a stimulator and the other as a spare, were sutured with fine silk into the anterior surface of the right ventricle, about 2 cm. apart. An indifferent electrode was implanted into the right pectoralis major muscle. All three leads, which were 2-ft. lengths of plastic-covered six-strand fine wiring used in telephone equipment, were exteriorized by separate incisions and anchored to the skin. The ends were connected to a battery-operated artificial pacemaker adjusted to maintain a rate of 120 beats

per minute, the usual postoperative rate of patients who undergo similar operations without developing heart block. The pacemaker, set to deliver 4 volts, which was just above the minimum voltage necessary to cause the heartbeats to follow the pacemaker consistently, accompanied the patient back to the ward. An electrocardiograph-monitoring oscilloscope was connected to the pacemaker.

The heart block and its management by the pacemaker was the only postoperative complication. On the second postoperative day the child suddenly became pulseless for 10 seconds, presumably due to cardiac arrest, but quickly recovered. The pacemaker was switched off on the fourth day and the heart maintained its own rate of 80 to 90 beats per minute until the eighth day, when it was necessary to use the pacemaker again. It was used intermittently until the 11th day. Then 5 mg. of isoproterenol was given orally three times daily, and the pacemaker was disconnected. The isoproterenol therapy was stopped 11 days later. On the 21st day, when it was evident that the heart was in spontaneous sinus rhythm, the electrodes were removed by slight traction. The girl was discharged a month later and was well when last seen.

New Type of Pneumoconiosis.—During a survey by the Pneumoconiosis Research unit of the Medical Research Council on random samples of men of known occupation, a new type of industrial pneumoconiosis was brought to light (*Tubercle* **39**:399, 1958). The investigations included a detailed industrial history, measurement of the ¾-second forced expiratory volume (FEV 0.75), and a chest film. The films were read by experts without any knowledge of the occupational or medical history of the subjects. One occupational group, designed as a control for the industrial groups, consisted of men who, as far as was known, had not been exposed to dust or fumes likely to damage the lungs or cause pneumoconiosis. When the data for this group were tabulated, however, it was found that a few of the chest films showed evidence of pneumoconiosis. These were from men who had worked for 40 years or more on the footplate of a train as a driver or stoker. The FEV was above the average for men of similar age in such occupations as agriculture. Although there was no evidence of pulmonary disability, the chest films showed unmistakable signs of pneumoconiosis. It was therefore concluded that after 40 years of driving on the footplate of a train sufficient dust is retained by the lungs to be roentgenologically visible.

New Viruses.—During an outbreak of a respiratory illness resembling coryzal bronchitis in a residential nursery in Sheffield, Sutton and co-workers (*Lancet* **1**:395, 1959) identified two new virus strains. Throat swabs from the children were inoculated into monkey-kidney tissue cultures. Hemagglutinins for chicken and human cells appeared in the mediums and two strains of virus, hitherto unreported in Europe although recently described in America, were identified. These strains, known as HA1 and HA2, belong to the myxovirus group. They were detected by the technique of hemadsorption.

Twin Pregnancy in a Double Uterus.—The extremely rare case of a twin pregnancy in a double uterus was reported by Dr. N. Kennedy, a general practitioner of Kent. Twins were diagnosed antenatally in a woman with two cervices who had had four previous pregnancies. She went into labor spontaneously at the expected time and after 12 hours was delivered of an asphyxiated infant who died shortly afterward. After delivery the right side of the mother's abdomen was seen to be empty and uterine contractions ceased. The remaining fetus lay obliquely with the vertex presenting high over the pelvic basin on the left. Three weeks later the second twin was born via the second cervix. A hysterosalpingogram taken subsequently revealed two uteri with separate cervices, the left larger than the right, showing that both uteri had been gravid. Several interesting points arise from this case: One uterus went into labor independently of the other; the right uterus retracted during the expulsion of the first twin, while the left uterus was undergoing first-stage contractions; and lactation was absent after the birth of the first twin but established itself shortly after that of the second.

Television Angina.—In a letter to the *British Medical Journal* Dr. G. Rose reported a new condition, observed at a clinic for coronary diseases, which he calls "television angina." This affected 20% of those patients with angina pectoris who watched television programs and was provoked by seeing violent incidents on the screen. Among those liable to emotionally produced attacks only a few could enjoy viewing television without cardiac pain. In some patients television angina was the only type of rest pain. Rose stated that commercials were innocuous, but Westerns and plays or films depicting violence or excitement often provoked anginal attacks.

Extravenous Injection Not Negligent.—Last June a judgment was given in favor of a patient who sued the North Liverpool Hospital Management Committee for negligence in the administration of thiopental for varicose vein operation. It was claimed that the thiopental, which should have been given intravenously, entered the surrounding tissues and produced an abscess. The case against the committee was that it was vicariously responsible for the negligence of the anesthetist. The judge awarded damages of $1,218. The case was taken to the court of appeal. The patient was an exceedingly fat woman; the anesthetist had inserted his needle obliquely over a vein and aspirated to make sure that the needle was in the vein. Blood entered the syringe, and he then injected 5 ml. of thiopental solution. As this produced no anesthetic effect, the

needle was withdrawn. Further attempts were made in both arms to locate a vein but without success. It was assumed that the thiopental had entered the tissues and not the vein, particularly in view of the later development of an abscess.

One error alleged was that the anesthetist should have aspirated blood repeatedly into the syringe during the injection to make sure the needle remained in the vein, but the judge found in the anesthetist's favor on this point. The second error alleged was that he failed to ask the patient if she felt any pain. The fact was that she did not, nor was there any swelling at the time; so even if she had been asked she would have replied in the negative. The court of appeal decided that there was no evidence of negligence on the part of the anesthetist.

Improved Obstetric Care.—The committee set up in 1956 to review the organization of the maternity services of England and Wales (Ministry of Health Report of the Maternity Services Committee, Her Majesty's Stationery Office, 1959) reported that the care of a woman in pregnancy and childbirth is divided between the three separate parts of the National Health Service, namely, the hospitals, the general practitioners, and the local health authorities. In general the system works reasonably well, although overlapping and impairment of service are at times inevitable. The report recommends that in future only general practitioners who are qualified and experienced in obstetrics should be paid for maternity work. At present doctors on the obstetric list of the National Health Service receive $20.60 for the complete obstetric care of a patient. The fee is $15 for those not on the list. The committee recommends that only doctors on the obstetric list, of which there are 14,400, should receive payment for maternity work. It is suggested that in the future admission to this list should be more selective. A six-month obstetric internship is regarded as a minimum qualification, and to remain on the list a doctor should have conducted at least 60 obstetric cases in the preceding three years.

Obstetrics, formerly practiced by many general practitioners, has now become highly specialized. There are 737,704 births yearly in England and Wales, nearly 65% of which are in hospital. To remain competent a doctor should attend a minimum of 50 cases a year but, allowing for hospital births, there cannot be more than 12 or 13 cases for each practitioner and this is insufficient to maintain obstetric skill. The suggestion is therefore made that a higher standard should be required. Fewer doctors would then practice obstetrics, and those who did would treat more such patients than at present. Remuneration should be correspondingly higher. The report also advocates the supervision of maternity units staffed with general practitioners by specialized obstetricians, without their trespassing too closely on clinical freedom. This would be difficult to achieve and would probably be resented by general practitioners. Many women, particularly of the middle class, prefer to have their second babies delivered at home rather than in hospital.

Other recommendations made by the committee include the provision of sufficient hospital accommodation for 70% of all confinements and antenatal beds for 20 to 25% of these. As it costs the patient less in hospital than at home it is suggested that the mother confined at home should receive a maternity grant of about $14. The committee considers that obstetric care should still be under the tripartite administration of hospital, general practitioner, and local health authority. To unify it under a single authority would create more problems than it would solve, but it suggests that the general practitioner–obstetrician could eventually replace the local health authority's medical officer in providing antenatal and postnatal care. The expectant mother should be instructed in child care and hygiene and should be provided with a maternity aid service after the birth of the baby. There should be sufficient premature-baby units to give country-wide coverage, and enough obstetric "flying squads" to attend all emergencies that cannot wait for hospital care. Resuscitation equipment, which should be kept in all hospitals, should be available to general practitioner–obstetricians. The committee considers that these should have access to maternity beds in hospitals, although few do at present. A final suggestion is the introduction of a national "maternity card" on which the mother's complete obstetric history could be recorded.

Idiopathic Hypoproteinemia.—Generalized edema may sometimes occur as a result of alteration in the metabolism of plasma proteins, resulting in severe hypoproteinemia. The patient appears to eat and absorb protein, to synthesize albumin, and to show no evidence of protein loss. Gordon, Schwarz, and Jarnum, working independently, showed that in this condition, which is known as idiopathic or hypercatabolic hypoproteinemia, the proteins are lost from the gastrointestinal tract (*Lancet* **1**:325, 327, 1959). These workers have succeeded in labeling polyvinylpyrrolidone (PVP) with radioactive iodine (I^{131}). This substance, with a molecular weight of 40,000, is unaffected by proteolytic enzymes, and is used as a plasma expander. PVP with I^{131} is useful for measuring the permeability of the alimentary tract to serum proteins. The fecal PVP–I^{131} content was measured after a single injection in 13 patients with idiopathic hypoproteinemia. In all of them there was excessive loss into the gastrointestinal tract, showing that in these patients there was an abnormal permeability of the tract to macromolecules. Albumin synthesis, in terms of the degradation of I^{131}-labeled albumin, was high in all cases, showing that the edema was not due to lowered blood albumin level. The edema would thus appear to be due to protein loss in the gastrointestinal tract. It is not known whether this is due to capillary leakage, a mucosal defect, or both.

CORRESPONDENCE

REMOVAL OF PLASTER CASTS USED IN WALKING

To the Editor:—For years my colleagues and I have been removing plaster casts used in walking by cutting them laterally or anteriorly. Recently, I came to the conclusion that it would be much easier to cut a cast posteriorly over the calf of the leg. This is the softest spot of the leg, and there is no bone anywhere near. This way one does not have to make the cut curving around the foot but merely cuts the plaster from the top to the heel. After having done that, all that is necessary is to spread the cast just enough to allow the patient to slip his foot out backwards. I have not found that method described in the literature and thought it might be of some help to others, as it was to me.

George Geyerhahn, M.D.
73 Deering St.
Portland, Maine.

CLONIC CONVULSIONS

To the Editor:—In the case report on "Clonic Convulsions After the Oral Use of Perphenazine (Trilafon)" in The Journal (**169**:834-835 [Feb. 21] 1959), the authors suggest that the patient had an epileptiform seizure. From the case summary it is noted that jaw and neck tremors were observed first, followed by generalized, clonic convulsions without loss of consciousness, opisthotonus, and rolling of the eyes upward. This description is reminiscent of the group of dyskinetic reactions of the extrapyramidal syndrome. Coming on shortly after the administration of perphenazine and characterized by tremors of the head and neck, hyperextension of the trunk, oculogyric crises, and generalized muscle spasms, it seems to be a striopallidal disorder rather than epilepsy.

These bizarre and sometimes frightening myoneural disturbances occasionally occur after the use of even small amounts of phenothiazines with a piperazine ring in the side chain and have been mistaken for epilepsy, encephalitis, and tetany. It would be rare for a generalized epileptic convulsion to occur without concomitant loss of consciousness. Freyhan recommends intravenously given caffeine and sodium benzoate, or phenobarbital sodium, during the acute phase. In addition, an anti-Parkinsonian agent should be given. When it is necessary to continue use of the drug, temporary reduction of dosage along with continued use of the anti-Parkinsonian compound is a relatively safe procedure. Apparently, physiological tolerance occurs and the dyskinetic syndrome is rarely seen after one week of phenothiazine therapy. Although this group of drugs may decrease the seizure threshold, this effect is considered a high dosage phenomenon. Epileptic convulsions would not be expected to occur on the first day of therapy.

Sidney Cohen, M.D.
Veterans Administration Center
Wilshire and Sawtelle Boulevards
Los Angeles 25.

"LABORATORY ERROR"

To the Editor.—In the Feb. 7 issue of The Journal, page 653, the reviewer of the book "Electrolyte Changes in Surgery" compliments the authors on their statement "that the most common electrolyte abnormality encountered in clinical medicine is the 'laboratory error.'" Excellent methods are now available for maintaining quality control in clinical laboratories.

As a clinical pathologist, I have reviewed more than 2,000 complete electrolyte studies (determination of pH; carbon dioxide content; concentration of sodium, potassium, chlorides, and total proteins; and the hematocrit reading) during the past two and one-half years. This review showed that the most common electrolyte abnormality encountered in our clinical practice was that due to patient disease. The second most common electrolyte abnormality was that due to therapeutic excess or neglect.

With proper use of control serum samples, the probability of "laboratory error" in any electrolyte determination can be statistically quantitated and kept below a predetermined level. The probability of error within a certain range of values can readily be kept below 1 in 1,000. This easily attainable probable incidence of error is certainly far removed from a level that would make "laboratory error" the most common cause of electrolyte disturbances.

S. Raymond Gambino, M.D.
2900 W. Oklahoma Ave.
Milwaukee 15.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Privileged Communications: Admissibility of Hospital Record Made by Attending Physician.—This was an action for damages suffered by the plaintiff as a result of an automobile accident. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Iowa.

Among other things the defendant contended that the trial court erred in refusing to admit in evidence the medical record of the plaintiff made at the hospital where he was taken immediately after the accident. The record was made in the handwriting of the attending physician, who also testified that he examined and prescribed for the plaintiff. The record was denied admittance in evidence on the ground that it constituted a privileged communication.

The Iowa law relative to privileged communications provides that: "No practicing attorney, counselor, physician, surgeon, or the stenographer or confidential clerk of any such person, who obtains such information by reason of his employment . . . shall be allowed, in giving testimony, to disclose any confidential communication properly entrusted to him in his professional capacity, . . ." The plaintiff contended that the record clerk of the hospital is the stenographer or confidential clerk of the attending physician and that the records in her charge taken in a professional capacity, or information gained while acting in such a capacity, are privileged.

We think there is much merit in this contention, said the Supreme Court. We have previously announced the rule that we will draw no fine lines as to whether a communication, professionally secured, is necessary or unnecessary. The policy of the statute is to provide for great freedom of disclosure by a patient to his physician, for the patient is often in no position to know what disclosures may or may not be necessary for his proper treatment. We have also held that the statute should receive a liberal construction designed to carry out its manifest purpose to make consultation by a patient with his physician entirely confidential and free from anticipation or fear that this confidence will be broken by the examination of the physician, directly or indirectly, as a witness in some legal proceeding. Clearly, then, such a statute is intended to cover any information gathered from the patient and placed in a record by an attending, consulting, or treating physician, whether done intentionally, willfully, or under a law requiring its preservation. It is our conclusion that any such information placed upon such hospital records would be, and is, covered under the statute as privileged to the same extent that the knowledge and information of the examining or treating physician is privileged.

The defendant also contended that the attending physician should have been permitted to answer questions as to whether or not the plaintiff, when seen in the hospital, was a drug addict; whether or not the plaintiff gave a history of drug addiction; and whether or not examination of the plaintiff indicated him to be a drug addict. Answers to these questions were not permitted on the ground that they were privileged, but the defendant contended that the observations inquired of and made by the doctor were of the nature of a casual observation and that he could make that determination without the confidence or any confidential relationship with the plaintiff.

There can be no serious contention, said the Supreme Court, that a professional physician-patient relationship was not established or intended to be established when the information and observation which was solicited by these questions was secured by the doctor. It may well be that this doctor or any doctor could identify a person addicted to the drug habit if he saw him on the street, but such is not the case before us. The information imparted, or which could have been imparted, certainly had, or could have had, a definite relation to his treatment, or possible treatment, and was not in the class of information willingly imparted as to matters foreign to the professional service anticipated, such as how or where the accident happened. The information sought was obtained during the professional relationship between the doctor and the plaintiff and was privileged.

The defendant's other contentions were also overruled and the judgment in favor of the plaintiff was affirmed. *Newman v. Blom*, 89 N. W. (2) 349 (Iowa, 1958).

Hospitals: Liability for Self-Inflicted Injury to Mentally Disturbed Patient.—This was an action for damages to a patient resulting from the alleged negligence of the employees of the defendant hospital. From a judgment in favor of the hospital the plaintiff appealed to the Supreme Court of Minnesota.

The plaintiff was hospitalized in the defendant hospital for the purpose of receiving care and treatment for injuries resulting from an automobile accident which occurred a few days prior to admission. No mention was then made of any mental disturbance or distress afflicting her. She was apprehensive and depressed for a few days, but about four days later she had progressed sufficiently to be able to go home. On the day she was to leave she was visited by a relative and a minister, and she seemed to enjoy talking to both of them. Shortly after the second visitor had left the plaintiff jumped out of the hospital window and

sustained the injuries forming the basis for this suit.

At the trial the plaintiff called a specialist in psychiatry and neurology. His testimony, based on the hospital record that was read to him, was to the effect that it would be impossible for any nurse to recognize suicidal tendencies on the part of the plaintiff and that even as a psychiatrist he might not have noticed such tendencies. Another doctor called by the plaintiff stated that he had observed the plaintiff while she was in the hospital and had not noticed any unusual behavior on her part.

The defendant is a general hospital and has no ward or department nor any special equipment for the care of psychiatric or mental patients and does not accept such patients. On its staff it has several neurosurgeons and psychiatrists. It is the place where its staff doctors bring their patients for care, and the doctors, not the hospital, direct the care to be given such patients. The psychiatrists on its staff come in as consultants to other doctors but do not hospitalize their psychiatric patients there. If a patient manifested a mental disorder, the patient's doctor would immediately be advised to such effect, and the hospital would arrange for the transfer of such a patient to some mental hospital. The defendant is not equipped with portable window bars or cages for the restraint of mental patients. There are no locks on the windows. If a patient manifests suicidal tendencies, a report to such effect would be made to the patient's doctor, and the hospital employees would carry out his instructions in the case. Under no circumstances would they attempt to restrain, tie up, or imprison any patient without an order to do so from the patient's doctor, except in extreme emergencies.

In this case, said the Supreme Court, there was nothing to indicate that the plaintiff was contemplating suicide. On March 31, while still apprehensive, she appeared able to control herself rationally and was cheerful about the prospect of returning home that day. She enjoyed talking to the minister who visited her that day and was reluctant to have him leave. She also manifested pleasure at the visit of her relative. To hold, the court continued, that under such circumstances the failure of the hospital attendants to apply restraints or to take other steps to restrict or confine her on their own responsibility constituted negligence would place too heavy and dangerous a burden on attendants employed by a general hospital. The Supreme Court concluded that in a case where a patient is admitted to a general hospital merely for the treatment of injuries sustained in an accident and nothing is said about any mental disorders afflicting such patients, and where, after such an incident as described here, the patient manifests such improvement as to eliminate any evidence of peculiarity or tendency to suicide and the hospital attendants abide by the orders of the patient's physician, it can scarcely be said that a fact in issue is present as to the hospital's negligence.

Accordingly the judgment in favor of the defendant hospital was affirmed. *Clements v. Swedish Hospital*, 89 N. W. (2) 162 (Minn., 1958).

Autopsies: Right of Non-M.D. to Give Opinion as to Cause of Death.—This was a prosecution for first-degree manslaughter. From a judgment of conviction, the defendant appealed to the court of appeals of Alabama.

The evidence showed that the autopsy on the body of the deceased had been performed by Mr. Sowell, a staff member of the State Department of Toxicology and Criminal Investigations. He held a bachelor of science degree in chemistry and additionally had studied bacteriology and human anatomy, pathology, physiology, and toxicology. He testified that he had performed approximately 500 autopsies during the time he had been employed by the department. He was not a physician, and the defendant contended that it was error to permit him to give his opinion testimony as to the cause of the deceased's death.

In view of Mr. Sowell's studies and experience, said the court, we think he was shown to be amply qualified to testify as an expert in this field.

For this and other reasons, the judgment of conviction was affirmed. *McMurtrey v. State*, 101 S. (2) 88 (Ala., 1957).

Charitable Hospitals: Immunity from Tort Liability.—This was an action for damages caused by the alleged negligence of the defendant hospital. From a judgment in favor of the defendant, the plaintiff appealed to the Supreme Court of Pennsylvania.

While she was a patient in the defendant hospital, the plaintiff's wife fell and fractured an ankle. The defendant raised as its defense that it was an eleemosynary institution and thus not liable for the torts of its agents and employees.

The immunity of an eleemosynary institution from tort liability, said the Supreme Court, has long been the established rule in Pennsylvania. The rationale of the rule lay in the bounden duty of a public charity as a trustee to apply its funds in furtherance of its beneficent purpose. The doctrine has been abandoned in England and in a number of American jurisdictions but the law on this subject is clear in this state. Charitable institutions are not subject to liability for tort.

Even though the rule of nonliability is judge-made it should not be abrogated otherwise than by a statute made to operate prospectively.

The court therefore refused to repudiate the rule of nonliability, and the judgment in favor of the defendant hospital was affirmed. *Knecht v. Saint Mary's Hospital*, 140 A (2) 30 (Pa., 1958).

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Effects of Sublingual Nitroglycerin on Pulmonary Arterial Pressure in Patients with Left Ventricular Failure. J. B. Johnson, A. Fairley and C. Carter. Ann. Int. Med. 50:34-42 (Jan.) 1959 [Lancaster, Pa.].

The authors studied with the aid of right heart catheterization the hemodynamic alterations produced by glyceryl trinitrate (nitroglycerin) administration in 9 men and 4 women, between the ages of 35 and 74 years, with left ventricular failure. Most of the patients had hypertensive heart disease. After control cardiac outputs and blood pressure measurements in the brachial and pulmonary arteries were made, glyceryl trinitrate in doses of 0.6 mg. was administered sublingually. Cardiac outputs and blood pressure measurements then were repeated at short intervals during the succeeding 30 minutes. In 9 of the 13 patients a reduction in pulmonary artery pressure was noted within 5 to 15 minutes after the administration of glyceryl trinitrate. By the end of 30 minutes a reduction in pulmonary artery pressure was observed in all 13 patients. In 4 patients in whom it was possible to measure the pulmonary wedge pressure according to Hellem's method, a significant fall in this pressure was also observed. In 12 patients the total pulmonary resistance fell promptly during the first 15 minutes after glyceryl trinitrate therapy. There was no consistent alterations in the cardiac output, nor was there a significant increase in heart rate.

One patient with a clinical diagnosis of angina pectoris was catheterized as a part of a preoperative study in preparation for pericardial poudrage. A typical attack of anginal pain with radiation into the left arm, similar to the patient's well-documented previous attacks, occurred during the period of control hemodynamic observations which preceded the sublingual administration of glyceryl trinitrate. During the height of precordial pain there was a sharp increase in the pulmonary artery pressure, and the pulmonary resistance was greatly elevated. Administration of glyceryl trinitrate resulted in a prompt reduction of pulmonary artery pressure and total pulmonary resistance, and there was complete disappearance of anginal pain. The patient had no subsequent complications as a result of this experience. The clinical and physiological data obtained in this and other patients in this series after the administration of glyceryl trinitrate suggest that this drug has an important place in the management of patients with pulmonary artery hypertension and paroxysmal dyspnea associated with failure of the left ventricle.

Miliary and Meningeal Tuberculosis: A Review of 354 Cases. L. V. Reilly. Ulster M. J. 27:146-157 (Nov.) 1958 [Belfast, Northern Ireland].

Three hundred fifty-four patients were treated in the Whiteabbey Hospital, of the Northern Ireland Tuberculosis Authority, from late in 1947, when streptomycin first became available, to the end of 1956. The group included 76 patients with miliary disease alone, 160 with meningeal disease in whom miliary spread was not detected, and 118 with miliary and meningeal disease combined. The incidence of miliary and meningeal tuberculosis was highest in children under 4 years of age; these numbered 120. Sixty per cent of the adults were between 20 and 30 years of age. Five patients were over 60. A history of contact with a patient who had infectious tuberculosis was obtained in many patients, particularly in children.

The diagnosis of miliary tuberculosis was usually confirmed by roentgenologic evidence and by the detection of choroidal tubercles. These tubercles were found in 25 patients with only miliary disease, in 59 with combined miliary and meningeal disease, and in 8 with meningeal disease. Sometimes they were not found till some weeks after the diagnosis had been made. The Mantoux reaction was almost invariably positive. Bacteriological confirmation of miliary disease was usually obtained by the finding of Mycobacterium tuberculosis in the fasting gastric residue. Positive cultures were found in 49 of the 76 patients with miliary tuberculosis. A few attempts were made to isolate the organism from blood or bone marrow, but without success. Confirmation of meningeal disease was obtained by examination of the cerebrospinal fluid. The combination of increase in the protein content and in cell count with reduction in the sugar content of the cerebrospinal fluid was the usual finding. Cell counts varied widely from 60 to 300, and lympho-

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cytes usually predominated. Examination of the cerebrospinal fluid for tubercle bacilli was carried out in all cases, and tubercle bacilli were isolated in 144 of 160 meningeal cases, in 110 of 118 combined miliary and meningeal cases, and in none of the miliary cases. In addition to direct smear examinations, cultures were made.

Methods of treatment changed. At first the routine treatment consisted of the intramuscular injection of streptomycin, and intrathecal administration was added when meningitis was present. During 1949 aminosalicylic acid was added to the treatment routine, and isoniazid came into use toward the end of 1952. Improvement in recovery rate, reduction in length of illness, and a lower incidence of complications became evident after the introduction of isoniazid. The addition of isoniazid to the treatment made it possible to dispense with the intrathecal use of streptomycin in many patients. A group of 37 patients treated with the 3 substances without intrathecal therapy made a full recovery. The most serious complication of meningitis was severe mental retardation, usually with blindness and deafness. Eleven of 178 patients with meningitis had this complication, and some of them still survive. Early diagnosis offers the best hope of recovery. A marked reduction in incidence of the disease occurred in the last few years.

Sickle Cell-Hemoglobin D Disease. E. W. Smith and C. L. Conley. Ann. Int. Med. **50**:94-105 (Jan.) 1959 [Lancaster, Pa.].

The authors report a youth with sickle-cell–hemoglobin D (S-D) disease, who was followed up from the age of 14 months to that of 21 years. The patient had fair skin, blue eyes, blond hair, and sthenic habitus, and he had no features suggestive of Negroid ancestry. He had had recurrent episodes of severe pain in the back and extremities dating from early infancy, and many attacks of "pneumonia," transient ulcers of the lower legs, and a chronic hemolytic anemia. Nevertheless, he maintained the general appearance of good health and was an accomplished athlete. Examination of a fixed blood smear revealed pronounced anisocytosis, with a large number of target cells and a few sickle cells, and the electrophoretic pattern of the hemoglobin on filter paper at pH 8.6 could not be distinguished from that of sickle-cell anemia. Despite these findings a diagnosis of homozygous sickle-cell disease was questioned because of many atypical features. Additional studies were performed, which revealed clear separation of the S and D hemoglobin components on agar plates at pH 6.2, and a smaller component with the mobility of fatal hemoglobin was also observed. The mother of the patient and 5 of her relatives were found to have the hemoglobin D trait. The patient's father and 6 of his relatives had the sickle-cell trait. In neither lineage was there evidence of Negro ancestry. Since the patient's paternal grandfather married twice and S hemoglobin appeared in children of each marriage, it is almost certain that he carried the S gene. The atypical hemolytic disorder in the patient thus had resulted from the inheritance of hemoglobin D from the mother and hemoglobin S from the father. The genetic data which were obtained support the belief that hemoglobin D is an allele of types A, C, and S of hemoglobin.

Salt Metabolism in Hypertension. J. M. Weller and S. W. Hoobler. Ann. Int. Med. **50**:106-114 (Jan.) 1959 [Lancaster, Pa.].

It is an established fact that sodium chloride metabolism is abnormal in patients with essential hypertension. These patients may have a slightly elevated serum sodium concentration, expanded total body sodium content, and increased amounts of sodium and water in their arterial walls. Hypertension may be alleviated by sodium depletion. The authors' studies carried out at the University Hospital in Ann Arbor, Mich., confirmed the fact that chlorothiazide, a potent natruretic agent, may exert an antihypertensive effect in both hypertensive animals and in patients. This drug potentiates the effect of various antihypertensive regimens. The concomitant administration of chlorothiazide reduces the requirement for ganglionic blocking agents in the treatment of hypertension. Patients who have undergone sympathectomy appear to be unusually responsive to the lowering effect of chlorothiazide on the blood pressure.

The increased renal tubular rejection of sodium, chloride, and water in response to salt loading, which is present in patients with essential hypertension, is felt to be the result of the elevated blood pressure and not its cause. There is no evidence that water excretion, occurring in excess of sodium excretion, causes a "relative retention" of sodium in most of the patients with hypertension. The concept is discussed that in essential hypertension the sodium content of certain compartments or tissues, possibly including vascular smooth muscle, may be increased. This may lead to the rise in blood pressure. The effectiveness of chlorothiazide in the treatment of some patients with hypertension may be through its ability to deplete these tissues of sodium; in other patients it appears to act through depletion of the plasma volume.

Cholesterol Metabolism: Clinical Aspects. H. Malmros. Nord. med. **61**:3-7 (Jan. 1) 1959 (In Swedish) [Stockholm].

In essential hypercholesterolemia (Müller's disease) the hereditary disturbance in cholesterol metabolism can lead to considerable deposits of cholesterol in various tissues. Particularly in the cases in which the serum cholesterol content is around

400 mg. % or more, Müller's disease may be suspected as the cause. Examination of the serum cholesterol in siblings and other relatives may reveal several cases of cholesterolemia in the family. Such investigations are of practical value from the prophylactic standpoint, as in patients with hypercholesterolemia on a hereditary basis there is special risk of heart infarction or other grave manifestations of arteriosclerosis setting in early. Hypercholesterolemia can appear secondarily in other diseases, such as hyperthyreosis, nephrosis, and poorly regulated diabetes. Here cholesterol deposits may occur in different tissues. This is also true in cholesterolemia seen in essential or secondary hyperlipemia. Cholesterol deposits can occur without increased serum cholesterol, as in Hand-Schüller-Christian disease. Most gallstones are made up chiefly of cholesterol. Not infrequently there is xanthelasma palpebrarum in women with gallstones. The level of serum cholesterol in these cases is often increased. From the clinical point of view the most important cholesterol deposits are those which appear as atheromatous plaques in the intima of the arteries in arteriosclerosis. During the last 2 or 3 years in the department of medicine at Lund, 30 patients with essential hypercholesterolemia were treated, most of them for over a year, with a diet containing no fat except corn oil. A definite fall in serum cholesterol was noted after a few weeks.

Sideropenia Problem Illuminated by Follow-Up of Patients with Hypochromic Anemia. I. Lindblom. Nord. med. **61**:7-13 (Jan. 1) 1959 (In Swedish) [Stockholm].

Of 305 patients with sideropenia (25 men and 280 women) treated 20 years ago, 80 have died; one death was due to cancer of the esophagus. Of the 123 patients followed up, 117 of whom were women, 2 had developed cancer of the hypopharynx (at present healed), and 1 had developed sublingual cancer (operated on 5 years ago and cured). Because of membranes of the hypopharynx which seem to be relatively resistant to therapy, 20 patients have been regarded as especially predisposed to cancer; they have required after-control, possibly combined with biopsies of specimens from the mesopharynx and the nasopharynx, in order, if possible, that precancerous conditions may be revealed early. The frequency of other symptoms of sideropenia is higher here than in other patients, but the symptoms have responded in the same degree to treatment with iron. While no relation between sideropenia and dietary deficiency has been established, the possibility of deficient diet to some extent years ago and in occasional cases now is not excluded. Graver recurrence of sideropenic anemia depends on acute causes, particularly bleeding. Return to normochromia occurs only gradually with increasing age, probably as a sign of slow building up of the iron depot. The irreversibility of sideropenia symptoms is greater in the patients initially treated only for their anemia and in those discovered through family connections than in the patients accidentally discovered to have the disease. A similar clinical course in the 3 pairs of uniovular twins in the material further supports the hypothesis that a dominant gene transmits the tendency to insufficient absorption of iron, disclosed especially when large amounts of iron are lost through bleeding.

Pernicious anemia was found in 10.6% of all the patients followed up in the series, and in 26% of those with stationary achlorhydria. Clinical observations on the 117 women suggest that hereditary factors, marginal amounts of iron in the diet, and pathological bleeding are conditions to be considered. Particularly in adolescent girls these conditions seem likely to cause sideropenia, which will recur on slight extra demands on the iron deposits.

Familial Hypercholesterolemic Xanthomatosis and Hypothyreosis. J. Opstad. Nord. med. **61**:15-17 (Jan. 1) 1959 (In Norwegian) [Stockholm].

A case of familial hypercholesterolemic xanthomatosis and myxedema in a man, aged 42 years, belonging to a family with familial hypercholesterolemia, was observed for a year. The serum cholesterol concentration varied during treatment with thyroxin. After a transient fall 3 months after the thyroid function had become normal, the concentration rose to values considerably higher than those before treatment. The phenomenon is believed to depend on the patient's abnormal cholesterol metabolism. The author had previously reported a case of familial hypercholesterolemic xanthomatosis combined with myxedema in which there was an initial fall in the serum cholesterol concentration after treatment; 3½ years later, however, the serum cholesterol level was 390 mg. %, although the patient was euthyroid and metabolism was normal. It appears that thyroxin treatment of patients with familial hypercholesterolemic xanthomatosis and myxedema does not result in long-range reduction of the serum cholesterol, but a fall in the serum concentration occurs early or late during treatment and is followed by a secondary increase of serum cholesterol.

Hypoglycemic Effects of 1-(p-Chlorobenzenesulfonyl)-3-n-Propylurea: Observations in Man. A. M. Tornow, M. R. Zinke, P. Greenberg and C. M. Leevy. Diabetes **8**:1-6 (Jan.-Feb.) 1959 [New York].

The authors report on 33 patients with diabetes mellitus who were treated with chlorpropamide [1-(*p*-chlorobenzenesulfonyl)-3-n-propylurea] for periods varying from 6 weeks to 6 months. Of the 33

patients, 18, who were controlled on diet and tolbutamide, or less than 20 units of insulin, were considered to have mild diabetes; 7, requiring 20 to 60 units of insulin, were considered to have moderate diabetes; 5 with maintained hyperglycemia and glycosuria on 60 or more units of insulin were considered to have severe diabetes; and 3 with unpredictable fluctuation between hyperglycemia-glycosuria-ketonuria and insulin shock were considered to have brittle diabetes. Two of the 18 patients with mild diabetes, who were previously controlled on tolbutamide, were no longer responsive to this drug at the time chlorpropamide therapy was instituted. During the earlier part of the investigation, each of the patients was given 1 Gm. of chlorpropamide daily; subsequently the daily dose varied between 0.25 and 0.5 Gm. depending on its effectiveness.

Results showed that chlorpropamide is an effective hypoglycemic agent in patients with diabetes mellitus. Chlorpropamide exhibited only a slightly greater hypoglycemic effect than tolbutamide after single doses of 1 Gm. of these drugs, but it appeared to be significantly more potent when given in maintenance doses of 0.5 to 1 Gm. daily. It permitted stabilization of diabetes in 2 patients who had become refractory to tolbutamide and in 4 patients with incomplete control on tolbutamide. There is, in general, an inverse relationship between the level of chlorpropamide and its effects on the concentration of sugar in the peripheral and hepatic venous blood. The drug tends to accumulate, so that adjustment of dosage is necessary to prevent profound drop in blood sugar. Severe hypoglycemia occurred in 3 patients on maintenance doses of 1 Gm. daily, associated with mental confusion, tachycardia, and sweating. Reduction of the administered amount and of the frequency of administration of the drug prevented recurrent hypoglycemia.

Chlorpropamide did not produce any evidence of dermal, renal, hepatic, or hemopoietic toxicity in the 33 patients. A regimen consisting of an initial dose of 0.5 Gm. of chlorpropamide each day, followed by a reduction or an increase depending on the clinical response, provided quickest control and fewest side-reactions. Slight gastrointestinal reactions were observed in 6 patients receiving 1 to 2 Gm. of the drug each day. Best control was established by periodic determinations of blood sugar and sulfonamide levels.

The Use of Latex Agglutination Reaction in the Diagnosis of Rheumatoid Arthritis. A. Ulloa, S. W. Griffin, M. L. Hayes and H. L. Holley. J. M. A. Alabama **28**:212-214 (Jan.) 1959 [Montgomery].

The serum of patients with rheumatoid arthritis is capable of agglutinating sensitized particulate bodies, such as bacteria, erythrocytes, collodion, and latex particles. This agglutination capacity is predicted upon the presence in the serum from rheumatoid patients of factors that are either absent or present in minimal amounts in the serum of normal individuals. Such a factor has been identified in the gamma globulin component of rheumatoid serums with the use of the analytic ultracentrifuge, paper chromatography, and ion exchange chromatography, in addition to the variety of serologic indicator systems. The exact nature of this so-called rheumatoid factor remains obscure, but the fact that it appears consistently in the serum of rheumatoid patients and rarely in that of nonrheumatoid patients represents one of the most significant advances. Since Rose and coworkers in 1948 used sensitized sheep cells in the first serologic test for rheumatoid arthritis, many modifications have been suggested.

The authors report their experiences at University Hospital and Hillman Clinic in Birmingham, Ala., with the latex test in which whole serum is used. Tests were made on 171 persons, in 85 of whom the diagnosis of rheumatoid arthritis was definite, and in 9 probable. Twenty-three had osteoarthritis; 9, lupus erythematosus; 10, ankylosing spondylitis; and 5, gouty arthritis. The other groups included normal controls and patients with disorders other than rheumatoid arthritis. The test was positive in 75 of the 85 patients (88%) with known rheumatoid arthritis. The authors conclude that the latex test is a valuable aid in the diagnosis of rheumatoid arthritis.

SURGERY

Massive Systemic-Pulmonary Arterial Shunt Through Multiple Pleural Adhesions. P. T. De Camp and H. B. Hatch Jr. A. M. A. Arch. Surg. **78**:206-211 (Feb.) 1959 [Chicago].

The authors report on a 34-year-old woman in whom a massive systemic-pulmonary arterial shunt occurred through multiple arterialized pleuropulmonary adhesions between the wall of the chest and the upper lobe of the left lung. This shunt increased the resting cardiac output by 75% and produced repeated attacks of choking and syncope. Preoperative roentgenograms of the chest revealed old fibrotic lesions in both lungs in the region of the lateral portions of the first and second anterior interspaces. A phonocardiogram recorded over the left third interspace near the sternal border showed a long systolic bruit with midsystolic accentuation. Division of the pleuropulmonary adhesions resulted in relief of all symptoms and eradicated the abnormal shunt.

Vascularized pleuropulmonary adhesions are commonly found at thoracotomy, and in some patients a pulsatile flow occurs from divided

vessels. Vigorous pulsatile flow must indicate a systemic arterial communication, and the direction of the blood flow must be from the thoracic wall into the lung. The findings in this patient indicate that a considerable quantity of such blood may flow back into the pulmonary artery. A systolic, or continuous, murmur or souffle is characteristic, as is the roentgenographic evidence of notched adjacent ribs if intercostal arteries have sufficiently enlarged. The shunt may significantly increase the myocardial work load. If enough blood is deviated from the normal systemic pathways, syncope and other symptoms of cerebrovascular insufficiency may develop. Right heart catheterization may detect such a shunt, and is recommended in patients in whom this condition is suspected. In selected cases aortography may give additional information.

Surgical Treatment of Chronic Bilateral Disease of the Lungs. S. L. Libov and Z. I. Levina. Khirurgiya **35**:13-19 (no. 1) 1959 (In Russian) [Moscow].

The possibilities of surgical treatment of certain bilateral diseases of the lungs are discussed. According to the literature and the authors' personal observations, bilateral disease of the lungs runs a severe course. In the series presented, 33 patients were examined; 27 of these patients suffered from bronchiectasis, and 26 were operated on. Bilateral operations were performed on 14 patients (single-stage operations were carried out in 3 instances). The greatest number of removed segments was 12. The left lung and the medial lobe of the right were removed in one patient. The majority of the two-stage operations were carried out at an interval of 6 months. Three patients died, one after a single-stage operation. All operations were performed with the patients under intratracheal oxygen–ether anesthesia.

Surgical Considerations of Peripheral Arterial Aneurysms: Analysis of One Hundred Seven Cases. E. S. Crawford, M. E. DeBakey and D. A. Cooley. A. M. A. Arch. Surg. **78**:226-238 (Feb.) 1959 [Chicago].

The authors report on 107 patients with peripheral arterial aneurysms, who were operated on in the surgical services of the Jefferson Davis, Veterans Administration, and Methodist hospitals in Houston, Texas, during the past 5 years. Of the 107 patients, the peripheral arterial aneurysms were caused by arteriosclerosis in 54 and by trauma in 37; poststenotic aneurysms of the subclavian artery, just distal to a constriction produced by the anterior scalenus muscles, occurred in 3 patients; aneurysms occurred in 7 peripheral homografts, employed in the treatment of patients with occlusive lesions of the femoral artery, 8 to 26 minutes after the operation; the causative factor in the development of false aneurysms occurring after peripheral arterial operations in 6 patients was a combination of infection, tension at the suture line, and fraying associated with the use of the Edwards-Tapp nylon tube. Of the 54 arteriosclerotic aneurysms, 30 were located in the popliteal artery, 23 in the femoral artery, and 1 at the bifurcation of the innominate artery. The relatively high incidence of multiple lesions in this group of peripheral arteriosclerotic aneurysms is evident from the fact that more than one aneurysm was present in 26 of the 54 patients. Of the 37 patients with traumatic aneurysms, the aneurysm resulted from a gunshot wound in 25 and from a stab wound in 12. The traumatic lesions were widely distributed, but in 29 patients (80%) the aneurysm involved an artery necessary for normal blood flow, such as the carotid, brachial, femoral, popliteal, or subclavian.

The clinical manifestations of the disease varied according to the type of lesion. The age of the patients with arteriosclerotic aneurysm ranged from 45 to 85 years; these patients were considerably older than the others and frequently had associated heart disease and hypertension. The presenting symptom in most of the patients, regardless of the type of lesion, was a pulsating mass. Thrombosis was present in a significant number of patients, and this complication was associated with arterial insufficiency in all patients. Rupture had occurred in 8 patients with arteriosclerotic aneurysms, and heart failure was present in 3 patients with arteriovenous fistulas. The lesion was localized to an operable segment of artery in all patients, and treatment was directed at both excision of the lesion and restoration of circulation. The aneurysms were excised in all patients, and restoration of circulation was possible by end-to-end suture of the involved segments in 45; 14 of the latter patients had arteriosclerotic, 29 had traumatic, and 2 had poststenotic aneurysms of the subclavian artery. The defect remaining after excision of the lesion in the other patients was of sufficient length to require an arterial substitute to restore peripheral circulation. Homografts, Dacron tubes, and the Edwards-Tapp tube were used for this purpose.

The results obtained in these patients were extremely gratifying, particularly when compared with the natural course of the disease. Normal circulation was restored in most of these patients. Amputation was required in only 6 patients, although a large number had arterial insufficiency and gangrene at the time of the operation. Death occurred in only 3 patients in this series, all of whom had arteriosclerotic aneurysms, despite the high incidence of associated heart disease and hypertension. Of the 3 patients who died, death resulted from myocardial infarction in 2 who were

operated on for rupture of the aneurysm, and death resulted from air embolism in the third patient. Although the follow-up period has been over 3½ years in most patients, the results have been well maintained. Three patients with arteriosclerotic aneurysm have died since operation, 1 of a ruptured aortic aneurysm, 1 of myocardial infarction, and 1 of cancer. Arterial occlusion has occurred in only 3 patients, and amputation has not been required by any of the patients since discharge from the hospital.

Arteriovenous Aneurysm of the Lung. D. K. Ossipov. Khirurgiya **35**:8-13 (no. 1) 1959 (In Russian) [Moscow].

The author emphasizes that up to 1942 only a few reports were to be found in the literature regarding arteriovenous aneurysms of the lung revealed at autopsy. The signs and symptoms of these aneurysms are cyanosis, changes in the terminal phalanges of the fingers, and increase in the number of erythrocytes in the blood and of the hemoglobin percentage. These signs and symptoms may be very mild or may be entirely absent. The roentgenologic method of examination with tomograms, roentgenokymograms, and especially angiopneumograms is decisive in the diagnosis. Surgery is the only rational method of treatment. The most sparing resection of the lung is recommended. The author presents the case histories of 2 women on whom lobectomy was performed in connection with arteriovenous aneurysms of the lung. One patient was operated on under local anesthesia, and the other under intratrachael oxygen–ether anesthesia.

Idiopathic Mediastinal Fibrosis. N. R. Barrett. Brit. J. Surg. **46**:207-218 (Nov.) 1958 [Bristol, England].

The author points out that, while some observers accept mediastinal fibrosis as the expected end-result of tuberculous mediastinal adenitis, syphilis, radiotherapy, or some comparable process, he argues that there is an idiopathic form which differs from fibrosis known to have been caused by chronic granulomatous conditions. He uses the term "idiopathic mediastinal fibrosis" because the etiology is unknown, because the site of the changes is the mediastinum above the heart, and because an abnormal proliferation of fibrous tissue is the visible anomaly. The clinical hallmark is the presence of venous hypertension in the catchment area of the superior vena cava. This hypertension is due to a fibrous mass that engulfs, invades, and destroys some or all of the great veins uniting to form the superior vena cava. The disease is rare, but it afflicts people of all ages and of both sexes; in general, the onset occurs in middle or late life.

As a rule, the symptoms of idiopathic mediastinal fibrosis appear suddenly in a patient who has previously been healthy. At the beginning, superior caval obstruction is neither suggested nor obvious in many cases. The first symptoms are often intermittent and, being relatively mild, may pass unheeded. In a typical case, the first symptom is puffiness of the face and arms, noticed especially when the patient gets up in the morning. In the second clinical phase, when the effects of superior caval obstruction are at their height, the following signs are added: a dusky color of the face, neck, and arms, with suffusion of the conjunctiva and perhaps telangiectasis; dyspnea, giddiness, tinnitus, headache, epistaxis, or hemoptysis; a feeling of pressure in the head; and a dislike of crowded places. All these unpleasant features are aggravated by coughing, straining, stooping, or exercise. After about 6 to 9 months the patient enters upon the third phase in which, as the years pass, there is a progressive relief of many signs and symptoms, but he never again becomes totally free from disability. The patient usually remains ambulant.

It is suggested that the pathological changes of idiopathic mediastinal fibrosis are akin to those found in periureteric fibrosis, pseudotomor of the orbit, and possibly ligneous thyroiditis (Riedel's disease). Idiopathic mediastinal fibrosis is a self-limiting disease, in which the signs and symptoms of superior caval obstruction are replaced and mitigated by those associated with the growth of a collateral venous circulation. The disease seldom kills; it is compatible with a long life, although the individual's working capacity may be somewhat restricted. There is no medical treatment. Irradiation is of no avail, and surgical operations have proved to be almost uniformly unsuccessful. The failure of bypass and replacement grafts is due to thrombosis in the grafts, and at the moment it seems to be impossible to prevent this.

Defects of the Interventricular Septum in Infancy: A Two-Stage Approach to Their Surgical Correction. H. D. Sirak, D. M. Hosier and H. W. Clatworthy, Jr. New England J. Med. **260**:147-151 (Jan. 22) 1959 [Boston].

The high mortality of open-heart surgery for defects of the interventricular septum in infants may be avoided by a two-stage approach. Surgical treatment is urgently needed in many of these small patients, weighing less than 4.5 kg. (10 lb.), because of heart failure or recurrent respiratory infections that do not respond satisfactorily to medical therapy. A two-stage approach is proposed to increase both the immediate and the ultimate salvage rate in these patients and still avoid the high mortality of open-heart surgery in infancy. In the first stage, which is performed in infancy, the pulmonary artery is narrowed by being en-

circled with a band of plastic cloth, similar to that in the method of Muller and Dammann. The constriction increases resistance to outflow from the right ventricle. This, in turn, reduces the left-to-right shunt across the septal defect. Thus, the work of the left ventricle is decreased, systemic circulation is improved, and the lung vasculature is spared. The second stage is the corrective open-heart repair. At this time the septal defect is closed, and the constriction is removed from the pulmonary artery. The operation is performed after the child has grown large enough to tolerate cardiac bypass.

A 3-month-old infant was hospitalized in July, 1955, because of recurrent heart failure and pneumonia. Fluoroscopy showed that the activity of the pulmonary arteries was markedly increased. The patient remained in the hospital where he had recurring bouts of heart failure and respiratory infection. When he finally improved, cardiac catheterization was undertaken. This showed a defect of the interventricular septum, with moderate pulmonary hypertension and a large left-to-right shunt. On Dec. 1 a pulmonary tuck was performed. After the patient returned home, growth and development progressed normally until 2 years of age, when the parents noted that he became somewhat bluish on exertion. During the next 6 months the cyanosis gradually became constant, and at 28 months of age he was readmitted. Open-heart surgery was performed on Jan. 15, 1958, and the child was discharged on the 12th postoperative day. Recatheterization 2 months later indicated a return to normal hemodynamics. The authors believe that this is the first patient in whom both stages of the two-stage approach to the surgical correction of defects of the interventricular septum were successfully completed. Success depends upon proper selection of patients and an adequate reduction of the pulmonary artery lumen during the first stage.

Bacterial Endocarditis After Surgery for Acquired Heart Disease: Report of Two Cases and Review of the Literature. F. G. Hoffman, S. L. Zimmerman, E. A. Bradley and B. Lapidus. New England J. Med. **260**:152-158 (Jan. 22) 1959 [Boston].

The cases of 38 patients in whom bacterial endocarditis developed after cardiotomy for acquired heart disease were collected from the literature, and 2 new cases are described in detail. The ages of the patients ranged from 20 to 51 years. Mitral valve surgery, including commissurotomy and suturing, was performed on 23 patients, aortic valve surgery (which included commissurotomy and nylon ball) on 21, and combined aortic and mitral valve surgery on 4. Cardiotomy without commissurotomy was carried out on one patient. Inquiry into the type of prophylactic antibiotic treatment before hospitalization for cardiotomy revealed information for only 7 patients, but the authors feel that further investigation of this point might be helpful. Staphylococcus pyogenes var. aureus was the causative organism in 26 cases; 11 were coagulase-positive, and 15 were coagulase-negative. Of the 11 patients with coagulase-positive staphylococci, 6 are living, and 5 dead. Of the 15 patients with coagulase-negative organisms, 7 are living, and 8 dead. These figures suggest only that coagulase-negative strains predominate and carry a higher mortality.

An attempt was made to correlate the possible source of infection with the temporal relations of onset of bacterial endocarditis after cardiotomy. Evidence suggests an extracardiac source when bacterial endocarditis develops within the first 4 weeks after operation, whereas in patients in whom the disease develops later, it is usually difficult to demonstrate the source. Further studies on the healing process of the surgically traumatized valves appear indicated. The frequency of postcardiotomy bacterial endocarditis can only be estimated, but it appears to be well under 1%. In the series studied, treatment regimens varied greatly. Almost all patients received penicillin, but streptomycin, tetracyclines, and chloramphenicol were combined with about equal frequency, apparently depending on in vitro sensitivity. The absolute mortality rate seemed to be about 35%, the corrected mortality about 27%. Previous reports on staphylococcic endocarditis not related to heart surgery gave a mortality rate of about 50%. No definite correlation between valvular calcification and mortality could be determined.

The clinical picture of bacterial endocarditis after cardiotomy was atypical in this series and differed from the usual subacute bacterial endocarditis. Fever, often low-grade, and septicemia were the only consistent findings. Changing heart murmurs, pericarditis, splenomegaly, petechiae, and embolic phenomena occurred in only a few patients. The diagnosis proved difficult, but postcardiotomy endocarditis should be suspected in any patient with fever after cardiotomy in the absence of the usual signs of bacterial endocarditis.

NEUROLOGY & PSYCHIATRY

Five Year Report of the Cerebral Palsy Program at the Nebraska State Orthopedic Hospital. H. E. Mitchell and B. W. Drompp. Nebraska M. J. **44**:3-10 (Jan.) 1959 [Lincoln].

The authors report on 275 patients who were accepted, examined, and treated as cerebral palsy patients between 1952 and 1957 at the cerebral palsy clinic sponsored by the State of Nebraska

and located at the Nebraska Orthopedic Hospital in Lincoln. Of the 275 patients, 187 were between the ages of 1 and 3 years; the fact that between these ages it is obvious to the parents that the child is not following a normal pattern of development, due to the lack of ability to sit or walk properly, accounts for the greater incidence of referrals at this age. A far greater number should be referred at this time. There were only 14 patients, aged less than 1 year, and only 11 over 13 years of age. Two hundred three patients (74%) had the spastic type of cerebral palsy; 47 (16%), the athetoid type; 15 (6%), the mixed type; and 10 (4%) were ataxic. The disease was mild in 77 patients (38%), moderately severe in 137 (50%), and severe in 61 (22%). Quadriplegia was present in 167 patients (60%), right hemiplegia in 35 (13%), left hemiplegia in 30 (11%), paraplegia in 38 (14%), triplegia in 4 (1.7%), and monoplegia in 1 (0.3%). Thirty-four patients (12%) had an intelligence quotient of from zero to 50, 96 (33%) had an IQ of from 50 to 70, 132 (47%) had an IQ of from 70 to 100, and 24 (8%) had an IQ of over 100. The disease was suspected to be congenital in 54 (20%), caused by prematurity in 34 (12%), due to birth injury in 127 (46%), caused by meningitis and encephalitis in 33 (12%), and due to other causes in 27 (10%).

The treatment program consisted of a coordinated effort of physical training and rehabilitation, speech training, correction and improvement of hearing and visual disability, and educational opportunities. The physical training program consisted primarily of functional activities. In order to proceed from stage to stage of the training program, bracing may play a very important part. Although conservatism is the watchword in the treatment of cerebral palsy, the authors unhesitatingly recommend surgical treatment when it is indicated to combat contracture or to improve the function of an extremity. One hundred eighteen patients underwent one or more surgical procedures. Surgical treatment on the upper extremity was performed primarily to relieve pronation contractures of the forearm, and good results were obtained from simple pronator teres tenotomy. Surgical treatment to improve the function of the lower extremity was gratifying in many patients. Hamstring transfer according to Egger's technique combats knee flexion and also corrects much of the adduction and internal rotation deformity, if present; it is considered the method of choice for the relief of scissor gait. Of 40 patients subjected to such transfers, 38 obtained excellent or good results, and 2 fair results. Soleus neurectomy is prefered to gastrocnemius neurectomy for the treatment of persistent talipes equinus, and there will always be a number of cases in which lengthening of the achilles tendon will be the procedure of choice.

In this series operative stabilization of joints proved very useful. The end-results in 171 operations performed on both upper and lower extremities were satisfactory in all but 15 cases. Of 57 patients treated in the occupational therapy department specifically to improve hand function, only 4 showed exceptional improvement, 42 showed moderate improvement, and 11 showed little or no improvement. Of 58 patients treated by the speech therapist, 3 showed exceptional improvement, 26 showed moderate improvement, and 29 showed little or no improvement. The educational program of the patients was recently surveyed by a mail questionnaire. Of 116 patients who answered the questionnaire, 87 were of school age. Thirty-seven of the 87 patients were in a school grade comparable with age; the remainder were below grade level or were no longer in school. Three children graduated from high school, and 2 are now attending college.

GYNECOLOGY & OBSTETRICS

Carcinoma Cervix Uteri: An Increase in Five Year Survival Rate: From 20 to 55 Per Cent during Twenty Years. H. B. Hunt, L. S. McGoogan, R. A. Bunting and R. E. Waggener. Nebraska M. J. **44:** 53-58 (Feb.) 1959 [Lincoln].

The authors studied the results of treatment in patients with carcinoma of the uterine cervix who were treated at the University of Nebraska Hospital in Omaha over a period of 20 years. Public education, earlier diagnosis, and more prompt and improved treatment contributed to the recent increase in the 5-year survival rate among patients with carcinoma of the uterine cervix. According to the Nebraska State Department of Health, the death rate from carcinoma of the uterine cervix declined from 11.5 per 100,000 population for the period 1944-1948 to 6.6 for the period 1954-1957. At the University of Nebraska Hospital the 5-year survival rate for all cases of carcinoma of the cervix increased from 20.5% in 1936 to 55.8% in 1952. The average time elapsing between the beginning of symptoms and first consulation during the period 1930-1937 was 11 or 12 months, as compared with 8 or 9 months for the period 1938-1947 and 7 or 8 months for the period 1948-1952. The interval between diagnosis and initiation of treatment has been reduced from 21 days during the period 1930-1937 to 10 days during the period 1948-1952.

All women past 40 should have a thorough pelvic examination annually. Cytological smears and biopsy are vitally important in the detection of carcinoma of the uterine cervix in its earliest stage. If cells of smears appear suggestive of or positive for cancer, a thorough evaluation of the entire cervical and uterine canal is indicated. Treatment should

be individualized according to the patient's age and whether she wishes to bear children. In young women, extensive conization of the cervix or trachelectomy, followed by frequent examinations with smears, is considered acceptable treatment. In older patients, total hysterectomy with removal of a rather wide cuff of vagina is recommended. If a major operation is contraindicated, roentgenologic treatment and radium irradiation would be the therapy of choice.

Of 111 patients with invasive carcinoma of the uterine cervix admitted to the University of Nebraska Hospital between 1948 and 1952, 102 were treated with radiotherapy alone, 5 with a combination of radiotherapy and surgery, and 4 with Wertheim's hysterectomy with radical lymph node dissection. Radiotherapy consisted of 2 or 3 applications of radium across the vaginal vault and along the uterine canal supplemented by external roentgenotherapy, delivered during a total period of 5 weeks. The survival rate among patients so treated was 54.7%. This is a great improvement over the survival rate of 20.5% for patients given intracavitary radium treatment alone during the period 1931-1936. The survival rate doubled to 41% during the period 1937-1947 when patients were referred earlier and received additionally external roentgenologic treatment. Improvement of radiotherapy was effected not through any increase in total dosage of radium or roentgen rays but through more individualization according to the distribution of disease, anatomy of the patient, and the general health and tolerance of the patient for irradiation.

There has been a recent revival of the surgical approach, and in the hands of the highly trained and technically skilled gynecologic surgeon the patient salvage for stage 1 carcinoma of the cervix is equal to that of the salvage with irradiation therapy. In stage 2 carcinoma of the cervix the survival rates after surgery are lower than those in stage 1; they are similar to those for irradiation therapy, but they are not greater. No proof has been presented that the superb operation of even the master surgeon excels or, in fact, equals contemporary radiotherapy of comparable excellence in the control of stage 1 and stage 2 cancer of the uterine cervix.

PEDIATRICS

Intestinal Polyposis with Oral Pigmentation (Peutz-Jeghers Syndrome): Report of a Case with Review. L. W. Falkinburg and M. N. Key. J. Pediat. **54**:162-169 (Feb.) 1959 [St. Louis].

The authors report on a 5-year-old boy with intestinal polyposis and with abnormal pigmentation in and around the mouth. On admission to the Roger Williams General Hospital in Providence, R. I., the child complained of severe abdominal pain, nausea, and vomiting. Laparotomy was performed, and a large amount of clear serous fluid was found in the peritoneal cavity. In the midjejunum there was a large intussusception which was irreducible, and a mass interpreted as a polyp could be palpated inside. This segment of small intestine was resected, and an end-to-end anastomosis was performed. Examination of the operative specimen revealed a polypoid adenoma of the jejunum. The patient's recovery was uneventful, but 6 months later he was admitted to the hospital for a second time, complaining of abdominal pain, tarry stools, and repeated attacks of respiratory infections. On physical examination the boy was pale, and his lips were cyanotic. Numerous small blackish-purple, discrete spots were noted on the mucosal surface of the lower lip, on the mucosal surface of the cheek, and on the hard palate. Roentgenologic examination of the gastrointestinal tract showed evidence of jejunal polyposis. Three blood transfusions were given, and iron therapy was started. There was general improvement, and the patient was discharged 3 weeks later with a diagnosis of Peutz-Jeghers syndrome. The patient was readmitted to the hospital after 3 months because of severe abdominal pain, anorexia, nausea, and vomiting. Laparotomy was performed, and 2 jejunal polypoid adenomas were removed. Recovery was uneventful, and the patient was referred to the outpatient department for periodic observation.

Peutz-Jeghers syndrome is a combination of oral melanosis and small intestinal polyposis, in which frequently a definite hereditary factor can be demonstrated. In this patient the pigmentation was noticed and correctly interpreted only on the second hospital admission, after the patient had undergone, during a previous admission, a major operation for intestinal obstruction. Such pigmentation should be looked for in every case of small intestinal polyposis, and, conversely, the discovery of such areas of pigmentation in the course of physical examination should direct the attention of the physician to the gastrointestinal tract. The occurrence of polyps in the small intestine is sufficiently uncommon to arouse suspicion of the syndrome. The first concern in the treatment is usually the relief, by surgical removal, of the intussusception responsible for the acute intestinal attack. After the diagnosis has been established, the question arises as to whether polyps shown by roentgenograms should be removed electively. In considering elective polypectomy no general rule can be laid down, but each case must be carefully and individually evaluated. The anemia, which is the result of slow bleeding from the polyps, can be successfully treated by blood transfusions and the administration of appropriate iron compounds. No treatment has been suggested for the melanotic areas, which are asymptomatic in themselves and are not cosmetic problems.

BOOK REVIEWS

Psychotherapeutic Drugs. By Ashton L. Welsh, M.S., M.D., Assistant Professor of Dermatology and Syphilology, University of Cincinnati College of Medicine, Cincinnati, Ohio. Publication number 350, American Lecture Series, monograph in Bannerstone Division of American Lectures in Dermatology. Edited by Arthur C. Curtis, M.D., Chairman, Department of Dermatology and Syphilology, University of Michigan, Ann Arbor. Cloth. $4.75. Pp. 139. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1958.

In a period of only five years tranquilizers have been produced and consumed at an alarming rate, probably exceeded in volume of total sales only by antibiotics and vitamins. A new language has been developed concurrently: ataraxic, normalizer, calmative, neuroleptic, psychic energizer, antiphobic, and phrenotropic are among the new terms constantly found in lay and medical literature. While in many instances these psychotherapeutic agents induce an improved mental state, they frequently produce undesirable subjective responses, toxic side-reactions, and objectionable effects when given with other drugs.

The principal groups of these drugs are the phenothiazines, the rauwolfia alkaloids and fractions, the substituted propanediols, the diphenylmethane derivatives, the ureides, and the amides. All of these categories contain drugs more familiar to practitioners under such popular names as Thorazine, Sparine, Compazine, Serpasil, Miltown, and Atarax. Each is listed in this useful book by generic as well as proprietary name, accompanied by details or its chemical formula, pharmacological action, administration and dosage, general and specific uses, toxic effects, and side-reactions. The listings are orderly and admirably arranged for quick reference. Specific dermatological uses, dermal reactions and allergic phenomena, cardiovascular complications, and side-effects on the central nervous system are stressed.

Many problems have arisen from the vast outpouring of tranquilizing drugs. When 30% of the prescriptions written in the United States contain one of these drugs, many physicians cannot be fully alert to the danger that artificially produced "peace of mind" may only drug mankind into hopeless inertia. The author is fully justified in his emphatic conclusion that "tranquilizing agents offer no substitute for accurate diagnosis or adequate medical supervision: they are adjuncts likely to displace, but never to replace some other forms of therapy." No physician should prescribe these drugs indiscriminately. This book, excellently produced, contains an extensive bibliography and an index.

A Textbook in Rorschach Test Diagnosis for Psychologists, Physicians and Teachers. By Ewald Bohm, Ph.D. Translated by Anne G. Beck, M.A., and Samuel J. Beck, Ph.D., Professorial Lecturer, University of Chicago, Chicago. Cloth. $7.75. Pp. 322. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W. C. 1, England, 1958.

The Rorschach test has become, over the years, the major instrument of clinical psychologists engaged in psychodiagnostics. This volume brings to the United States, in translation from the German, much of the foreign literature previously available only in that language. It is a careful presentation of the author's views on the use of the test. While the author chose to present a step-by-step manual, taking the reader through each minute stage of administration, scoring, and interpretation, the completed volume is far from being a beginner's textbook. This is a highly sophisticated and complex presentation which will be welcomed by the initiate, an adjunct to other reading for the novice, and quite beyond the uninitiated. The language of the book is largely made up of "Rorschach vernacular" presented from the particular bias of the author and the translators, who frequently draw direct causal relationships between pathological states and specific Rorschach signs. The theoretical framework in which the author chose to make his interpretations is admirably presented.

In certain areas the author shows a broad acquaintance with the differing viewpoints expressed in the literature and indicates the need for caution in interpreting these factors. His discussion of intelligence and the use of the Rorschach test to measure this highly controversial facet of the patient is clear and precise, yet here and elsewhere throughout the book there is an almost too ready acceptance of opinion favoring the Rorschach test without evaluating opposite opinion. For example, in his discussion of organic psychoses he seems to accept without question the quotation "It may be considered a proven fact that the senility process is a reversing of the development process." Observers in gerontology, at least in the United States, hold that this still needs to be proved.

In the area of psychopathology the author is more questioning and more evidently alert to the complexities within the field. Here, while expressing himself with an unalleviated dogmatism, his

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

presentation is logical, precise, and well reasoned. The book is unlikely to be read widely outside the field for which it was written because of the amount of complicated personality evaluation within it. In its field, however, and certainly among those who share the author's Rorschach orientation, the book should soon become a standard textbook and reference work. While the medical practitioner may find it generally too complex, many psychologists should find new and interesting facets of psychodiagnostics clarified for them. As a highly specialized book on a subject that needs constant elaboration this should become a part of most reference shelves on the Rorschach test.

Leukemia. By William Dameshek, M.D., Professor of Medicine, Tufts University School of Medicine, Boston, and Frederick Gunz, M.D., Ph.D., Hematologist, Christchurch Hospital, Christchurch, New Zealand. Cloth. $15.75. Pp. 420, with 143 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W. C. 1, England, 1958.

This excellent book is the first comprehensive treatise on leukemia published in the past 20 years. It covers the entire field in detail and with a comprehensive bibliography, with chapters on etiology, classification, prevalence, symptoms, special features, prognosis, and treatment. The strongest parts of the book are the sections on the clinical aspects of the disease, which are discussed in detail with emphasis on the great variability of the diseases; their differences at various stages; their complications, both common and unusual; and the problems of diagnosis and differential diagnosis, which often offer difficulties. The fact that the findings in leukemia are not static but endlessly changing, offering a constant diagnostic and therapeutic challenge, is stressed. The chapter on treatment is comprehensive. Not only are general indications and contraindications for the various agents given but detailed discussion accompanies the explanation of the use, method of administration, and limitations of each therapeutic agent. The type is large and clear, and the photographs of clinical material, roentgenograms, tissues, marrow, and blood are uniformly excellent; but the colored illustrations, unfortunately, are highly diagrammatic. There are many excellent charts summarizing clinical and other data. Two minor criticisms might be raised. The first is of the emphasis on the "myeloproliferative" disorders and the attempt of the authors to develop or expand a unified system based on morphologic rather than etiological or dynamic grounds; the second is of the somewhat chatty and informal tone which creeps in and seems, at times, out of place. Students should find the book handy for reference; hematologists, for a comprehensive summary; and all others whose practices bring them in contact with leukemia, for a practical guide.

A Compendium of Research and Theory on Stuttering. By Charles F. Diehl, Ph.D., Professor of Psychology, Director, Speech Center, University of Kentucky, Lexington. Publication number 344, American Lecture Series, monograph in Bannerstone Division of American Lectures in Otolaryngology. Edited by Norton Canfield, M.D. Cloth. $9.75. Pp. 314. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1958.

The behavior complex called stuttering, whether it is a speech impediment, a psychological symptom, or a habit pattern, has received broad attention in both popular and scholarly literature. Books have been written expounding particular theories, detailing research, advising parents, elaborating self-cures, and explaining therapies for this condition. At times it appears that the reverse of Mark Twain's comments on the weather is true of stuttering. Everybody is not only talking about it but seemingly doing something about it, and yet like the weather it goes on and on. There seems to be the same number of stutterers (about 1% of the population) despite the work being done to alleviate the condition. This book reflects this widespread interest. It is truly, as the title implies, a compendium of research and theory. It was published because it was believed that a summary of what has been written in the field was needed. The book presents brief synopses, in an orderly fashion and almost without evaluation of either their worth or their importance, of what has been said, studied, discovered, and conjectured in print about stuttering. It offers no qualifications of the material, presenting for each study or theory the author's name, the title of his study, whether a research design was employed, what the study was about, and the conclusions reached. It is often unclear, in its conclusions, whether these are the findings of the researcher or whether they represent judgments made by the editor.

To any student of stuttering the book will save many hours of library study, but to anyone interested in self-help for stuttering it will provide only confusion, for no one approach is represented as being better than another. If widely read by stutterers the book may end by working a hardship on clinicians, for any reader will be impressed by the multiplicity of theories, the lack of agreement among researchers, and the comparative lack of acceptance within the field of any single approach. The book is easy to read and simply designed, and the research seems adequately summarized. Professional practitioners engaged in working with stutterers will undoubtedly want the book for their reference shelves, and speech therapists should find it useful in filling out the gaps in their own reading. The general medical practitioner, however, will find the book of little interest.

The Management of Fractures and Dislocations: An Atlas. Volumes I and II. By Anthony F. DePalma, M.D., Professor of Orthopedic Surgery, Jefferson Medical College, Philadelphia. Cloth. $35 per set of 2 volumes. Pp. 469; 471-960, with 1927 illustrations by Barbara B. Finneson and William A. Osburn. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W. C. 2, England, 1959.

In this large atlas of fractures and their treatment the author has handled his subject well but not logically. With a little rearrangement all the fractures and dislocations of the upper extremities could have been placed in one volume, and those of the lower extremities in the other, but this was not done. This is not a serious criticism, because one would certainly buy both volumes in any case, and in spite of this the presentation of any fracture can be located easily. The book contains nearly 2,000 clear, distinct line drawings. Each drawing is accompanied by a brief description which would make the book of special value in the admitting department of a hospital. For some unaccountable reason, there is no description of the Leadbetter maneuvers for reduction of fractures of the neck of the femur. In the case of fractures of the ankle and leg there are no plates showing a pin or tongs in the os calcis to gain skeletal traction for the explosion type of fracture in the lower end of the tibia. Some rather terse comments, such as "don't abandon a pathological fracture" and "never use a tourniquet in open fractures," are especially commendable. Although all will not agree with the author's method, the book is easy reading and the illustrations are good.

Electrocardiography. By E. Grey Dimond, M.D. Director, Cardiovascular Laboratory, Professor of Medicine, University of Kansas Medical Center, Kansas City. Second edition. Cloth. Pp. 172, with illustrations. University of Kansas Medical Center, Rainbow Blvd. at 39th St., Kansas City 12, Kansas, 1958.

This book is especially designed for the beginner and is written in simple terms. The diagrams are also clear and so elementary that some readers might be annoyed at not being given credit for a higher level of intelligence, but the author, who has had many years of experience in teaching electrocardiography, has probably found that the average physician has forgotten even the most elementary principles of electrophysics. In a book of this sort the material must, for purposes of clarity, be presented in a dogmatic manner. In spite of this handicap the author has managed to give a remarkably accurate presentation of current concepts in electrocardiography in a practical manner. There are several references to other books on the subject. This is an ideal book for the general practitioner who is anxious to be introduced to electrocardiography.

A Symposium on the Evaluation of Drug Toxicity. Editors for Imperial Chemical Industries, Ltd. (Pharmaceuticals Division): A. L. Walpole, Ph.D., B.Sc., and A. Spinks, M.A., Ph.D., B.Sc. Cloth. $5.50. Pp. 138, with 58 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Place, London, W. 1, England, 1958.

This book presents the transcript of a symposium held at Alderley Park, Macclesfield, England, on Oct. 1, 1957, in conjunction with the opening of the new research laboratory of the Imperial Chemical Industries, Ltd. The skilled investigator, familiar with the methods of evaluation of drug toxicity, will find little of interest in this book, since most of the material appears to be somewhat elementary. The papers dealing with the discussion of the toxic action of drugs on the liver and on the bone marrow, by exception, become so involved that the average reader may find the text difficult. It is doubtful whether most readers of THE JOURNAL would care to add this book to their libraries.

Viral and Rickettsial Infections of Man. Edited by Thomas M. Rivers, M.D., and Frank L. Horsfall, Jr., M.D. Aided by grant from National Foundation. Third edition. Cloth. $8.50. Pp. 967, with 134 illustrations. J. B. Lippincott Company, E. Washington Sq., Philadelphia 5; 4865 Western Ave., Montreal 6; Pitman Medical Publishing Company, Ltd., 45 New Oxford St., London, W. C. 1, England, 1959.

The rapid growth and development of virology and rickettsiology amply justify the appearance of this new edition. It contains seven new chapters, and there are 14 new authors. The first 12 chapters are devoted to the more fundamental aspects of virology and rickettsiology and include discussions of the chemical and physical properties of viruses, the virus–host cell relation, interference, chemotherapy, the important techniques used in the propagation of viruses and Rickettsiae, the serologic reactions in viral and rickettsial infections, and the principles of epidemiology. In the rest of the book every important viral and rickettsial disease is considered in detail. The discussion of each infection includes something of its history, cause, symptoms, lesions, diagnosis, treatment, and control measures. The student, the clinician, and the investigator should find in this book all of the information available concerning viral and rickettsial diseases. If a particular technique or piece of information is not presented in detail, adequate references are usually provided at the end of each chapter. In spite of the fact that there are many contributors there is little if any reduplication of subject matter in the various sections. The editors hoped that this book would prove useful to physicians, teachers, and investigators, and this objective has been attained. No one who is interested in the general subject of viral and rickettsial diseases should fail to read this book.

QUESTIONS AND ANSWERS

CEREBRAL ARTERIOSCLEROSIS

To the Editor:—*Have any studies been made on the use of desoxyribonucleic acid or ribonucleic acid in the treatment of cerebral arteriosclerosis? Supposedly, some months ago, an article was published in the* American Journal of Psychiatry, *advocating its use.*

W. W. Brubaker, M.D., Annville, Pa.

Answer.—The correspondent apparently refers to a report by Cameron (*Am. J. Psychiat.* **114**:943, 1958) in which the use of nucleic acid in aged patients with memory impairment is described. According to Cameron desoxyribonucleic acid and ribonucleic acid were given intravenously in doses of 100 to 500 mg. Ribonucleic acid was also given orally in daily doses of 10 to 20 Gm. In all 23 patients treated favorable results were noted. In one-half the results were good. The best results were obtained in those with severe memory deficits and marked confusion. Results were usually noted in four or five days. Intravenous injection appeared to be a better method than use of the oral route. Hyaluronidase was given intrathecally to some patients. It is hoped that effective and simple treatment will be available for aged patients with memory impairment, presumably so-called senile dementia or chronic brain syndrome. The report referred to is a preliminary one and lacks specific details in all of its aspects. Control data are wanting. Further study will be needed before this treatment can be routinely recommended.

STAPHYLOCOCCIC INFECTIONS

To the Editor:—*Would it be advisable to withhold one, or possibly two, antibiotics in a hospital of 200 beds to prevent severe staphylococcic infections? Should a surgeon with known active furuncles of such exposed portions as the face, neck, or hands, or one who is a carrier of staphylococci, be allowed to enter the operating room?*

M.D., Wisconsin.

Answer.—Many consider it advisable to withhold one or two antibiotics from general use. Erythromycin and oleandomycin are two that one staphylococcic infection committee recommended holding in reserve for use in proved resistant staphylococcic infections. Penicillin, streptomycin, tetracycline, chloramphenicol, and novobiocin are prescribed as indicated. Another group might feel it wise to withhold a different collection from general use. In most hospitals any person with obvious active furuncles is denied access to the operating suite. The question of staphylococcic carriers is a difficult one. One may have negative cultures one day and positive the next. Careful technique with adequate masks and frequent changes would seem the best answer.

MYELOGRAPHY AND DISKOGRAPHY

To the Editor:—*What risks are associated with myelography and diskography? Is a surgeon justified in obtaining a myelogram or diskogram to establish evidence of disease for medicolegal reasons, or are these procedures justified only to establish additional clinical evidence when symptoms are severe enough to demand surgery?*

William L. Minear, M.D.
Albuquerque, N. Mex.

Answer.—The risk of myelography consists primarily in the development of adhesive arachnoiditis after retention of the contrast medium. The degree of such arachnoiditis depends, to some extent, on how much contrast material is left in the spinal canal after the injection. Iodized oil tends to remain indefinitely in the dural sac, whereas iophendylate is absorbed gradually over a period of months or years. If the patient has leaned forward long enough, so that the contrast medium has flowed into the cranial cavity, the cranial subarachnoid spaces may be affected. There is some evidence that blood tends to emulsify the iodized oil and may add to the likelihood of producing arachnoiditis. Arachnoiditis may occur without myelography or surgery. Patients involved in litigation have symptoms ascribed to retained contrast medium more frequently than others. Arachnoiditis and radiculitis have not been reported after diskography. At least two cases of infection of the intervertebral disk have been described, in a few thousand diskograms.

In the case of a suspected intraspinal protrusion of an intervertebral disk, the diagnosis and indications for operation are usually primarily determined clinically. Myelography is generally indicated as a preoperative measure to confirm the clinical impression, to make a more exact localization, to seek the presence of multiple disks, and to exclude other conditions, such as neoplasm. Diskography has not

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

been widely accepted, and some of its early proponents have abandoned the procedure. This consultant agrees with the proponents of diskography that, after negative findings in the myelogram, diskography is to be preferred to a direct exploration, so that no operation is performed if the diskography shows normal findings. On the other hand, it would be of interest to know the frequency of derangement of an intravertebral disk in asymptomatic persons. When a myelogram, or diskogram, is recommended for medicolegal reasons only, the surgeon should emphasize the risks of the procedure and leave the decision to the patient. If the patient decides to request the procedure anyway, some surgeons refuse to carry it out for these reasons only but others may properly do so.

MEDICOLEGAL QUESTIONS

To the Editor:—*From the medicolegal point of view, is there any evidence that trauma or any extraneous cause may produce cancer, sarcoma, or leukemia or congenital, endocrine, or metabolic disease? In one case, a woman received a blow on the left breast in an automobile accident and within a year carcinoma of the left breast developed. In another patient, after contusion of the tibia a Ewing sarcoma developed in that bone. In an x-ray technician who developed leukemia, could overexposure to x-rays during the course of employment have been a causative factor? A pregnant woman was exposed to carbon monoxide fumes from a defective furnace, and her child was born with a cleft palate and intestinal abnormalities, requiring colostomy. Three siblings were normal, and there was no history of this condition in other members of the family. Did the carbon monoxide poisoning contribute to the development of these deformities? After an automobile accident in which there was severe emotional strain, a patient developed diabetes. Was the accident a precipitating cause of the diabetes? Another patient developed rheumatoid arthritis after a similar experience. Did the accident contribute to the development of the rheumatoid arthritis?*

William L. Minear, M.D.
Albuquerque, N. Mex.

Answer.—There is no evidence that a single episode of trauma ever produces cancer. There are cases reported in which repeated trauma seems to have played a role, and several reports have implicated exposure to x-ray therapy as a cause of leukemia and carcinoma of the thyroid gland. There are several hundred known carcinogens which can be extraneous causes of cancer. It would be difficult to relate carbon monoxide poisoning and congenital deformities or emotional strain and diabetes or rheumatoid arthritis.

HAZARDS OF SNUFF AND CHEWING TOBACCO

To the Editor:—*What are the possible harmful effects of the use of snuff and of chewing tobacco?* *M.D., Virginia.*

Answer.—Dygert (*New England J. Med.* **257**:311, 1957) showed that snuff may be a source of the pathogens Pseudomonas aeruginosa and Proteus vulgaris. He reported a case of bronchitis in which the clinical and cultural findings showed that these organisms were pathogenically active. When the use of snuff was discontinued, the pathogens disappeared from the sputum. After a few weeks these organisms reappeared in the sputum, and the patient admitted that he had been chewing cut plug tobacco. When he stopped chewing tobacco, the organisms disappeared again.

Chinachoti and Tangchai (*Dis. Chest* **32**:687, 1957) reported pulmonary alveolar microlithiasis in a patient who had been a heavy user of snuff for 23 years. They expressed the view that the pulmonary lesions found at autopsy were associated with the inhalation of snuff, which is composed of tobacco and earthy material. The low content of silica and the nature of the pulmonary lesions excluded silicosis.

The results of chewing tobacco are not well defined. One explanation is that the nicotine in smoke is in a more finely divided state than it is in tobacco juice derived from chewing tobacco and thus it is absorbed more easily from smoke than from tobacco juice through the oral mucosa; therefore, the concentration in the blood, derived from tobacco juice, may be less. Biebl and co-workers (*Am. J. Physiol.* **100**:167, 1932) reported that when nicotine is absorbed from the gastrointestinal tract, it is detoxified by the liver before it reaches the general circulation.

SHOULDER-ARM SYNDROME

To the Editor:—*After an acute coronary occlusion which seems to have healed well, a patient had no sequelae except severe left shoulder and arm syndrome which failed to respond to treatment. X-ray therapy, cortisone injections, methylprednisolone (Medrol), vitamin B complex, dextropropoxyphene hydrochloride (Darvon) compound, salicylates, aspirin, and vitamin B_{12} were tried without benefit. How long may this shoulder-arm syndrome be expected to last, what is its cause, and is there any other treatment which might give relief?* *M.D., New Jersey.*

Answer.—The pain fibers from the fourth cervical segment to the second thoracic segment overlap in producing painful arm and shoulder syndromes in connection with cardiac pain of a referred type. Because of this, many patients with coronary in-

sufficiency, angina pectoris, and myocardial infarction have referred pain in the left shoulder. This pain tends to limit the motion of the left shoulder. The fixation of the shoulder and lack of motion produce a synovitis of the joint which further restricts shoulder motion. This, in turn, produces an atrophy of disuse, particularly of the deltoid muscle. The patient suffering from any of the abovementioned conditions should keep his hands above his head for 10 or 15 minutes four or five times daily. Those who do this seem to have no trouble with the so-called cardiac arthropathies. Free extension of the shoulder in the lateral and perpendicular positions will free these adhesions. Sometimes this must be done with the patient under anesthesia to produce full abduction. Maintenance of this free position plus regular exercise usually results in a normally functioning shoulder. Incidentally, it has often required more time to cure these arthropathies than the myocardial infarction.

IDIOPATHIC HYPOGLYCEMIA

To the Editor:—*Are there any ill-effects from a continued low-carbohydrate diet containing 100 to 150 Gm. of protein per day in a patient with idiopathic hypoglycemia? Would it be likely to cause an osteoarthritis or aggravate a preexisting one?*

M.D., California.

Answer.—In a healthy person wide ranges in dietary composition are tolerated with no apparent ill-effects. A diet low in carbohydrate and with 150 Gm. of protein should not cause or aggravate osteoarthritis. The low-carbohydrate high-protein diet designed to render a steady support to blood sugar by gluconeogenesis, rather than sudden rises as with carbohydrate, has enjoyed a vogue in the treatment of functional hypoglycemia, but while this was an interesting concept, such treatment frequently failed. The most popular current concept is that functional hypoglycemia is a psychosomatic disorder and that it frequently responds to a sympathetic ear and reassurance. Osteoarthritis to date has been linked with trauma and the aging process. Its cause and pathogenesis are unknown. There is no evidence that it is related to carbohydrate metabolism or changes in the diet. This statement does not apply to such other forms of arthritis as gout.

ORTHOPEDIC TESTS

To the Editor:—*Please explain the following orthopedic tests: (1) Nachlas, (2) Yeoman, (3) Lasègue, and (4) Viets.*

M.D., Louisiana.

Answer.—In the Nachlas test the patient is placed prone on a hard table and the knee is flexed by the examiner. If the result is positive, the patient has pain in the sacroiliac joint, lumbosacral joints, and down the anterior and posterior aspects of the thigh and calf. The rectus femoris tightens up and extends the pelvis and spine, thus causing pain, if there is a lesion in the sacroiliac or lumbosacral area.

The Yeoman sign is not a test but a sign. Yeoman stated that arthritis of the sacroiliac joint caused sciatic pain in 36 of 100 patients with sciatica so that it actually would be determined by reading the roentgenograms. The symptoms are caused by a periarthritis of the anterior ligaments of the sacrum, the piriformis muscle, and radicals of the sciatic nerve.

The Lasègue test consists of reproducing the pain when the patient is flat on his back with the leg flexed and knee extended. It was described as a test for muscle spasm in the hamstring muscles. All three of these tests were described before the exact lesion being tested for was known, and varied explanations of the cause of the positive test were postulated, all of which were wrong. They are interesting historically but of questionable practical value if their original interpretations are to be held.

The Viets test is another example of the absurdity of using eponyms for tests. It is a test known by its practical value but not by this name. It is the neostigmine test for myasthenia gravis and consists of the injection of 1.5 mg. of neostigmine methylsulfate and 0.6 mg. of atropine sulfate per 150 lb. (68 kg.) of body weight. A positive result is judged clinically by an increase in the muscle strength and a clearing of the toxis.

IDIOPATHIC HEMOCHROMATOSIS

To the Editor:—*In the person with idiopathic hemochromatosis what results may be expected from a determination of serum iron level and serum iron binding capacity? If these are normal, is further diagnostic work indicated, such as a liver biopsy or radioactive iron study? What is the best treatment?*

Marvin Garrell, M.D., Fairfield, Conn.

Answer.—The normal body weighing 70 kg. (155 lb.) contains 4 or 5 Gm. of iron. In idiopathic hemochromatosis there may be 25 to 50 Gm., and the serum iron level is usually elevated. Normally, the values are in the range of 100 to 150 mcg. per 100 cc. In idiopathic hemochromatosis the serum iron level may approach 300 mcg. per 100 cc.; but as the disease and the consequent liver damage progress, the plasma protein level may fall, and with it the serum iron level. Hence, more important than the serum iron level is the degree of saturation of the iron-binding globulin, transferrin (siderophylin). Normally this is only about 40% saturated, and while the normal serum iron level is 120 mcg. per 100 cc., the siderophylin can bind

300 to 400 mcg. per 100 cc. when it is completely saturated. In idiopathic hemochromatosis and transfusion hemosiderosis, the saturation of the iron-binding globulin approaches 100%.

If the serum iron level is normal and saturation of serum for iron is less than 50%, then hemochromatosis can be excluded and a liver biopsy is not necessary. It might be included as a diagnostic tool for other causes of cirrhosis. Radioactive iron is a research tool and was used to demonstrate that the defect in hemochromatosis is an increased absorption of iron from the gastrointestinal tract.

The best treatment for hemochromatosis depends on early diagnosis before liver damage has occurred, and then removal of the iron. For all practical purposes the excretion of iron is negligible, and to date the best method for the removal of iron has been repeated small phlebotomies, 250 to 500 cc. every three to six weeks. A 500-cc. phlebotomy removes 250 mg. of iron. The average diet contains 10 to 20 mg. of iron, of which less than 10% is normally absorbed. For this daily absorption of 1 or 2 mg., about 0.8 mg. is lost per day in desquamated cells, sweat, and urine; hence phlebotomy removes a significant amount of iron.

CHEMICAL BURNS OF RESPIRATORY TRACT

To the Editor:—*A 3-year-old boy ingested an indeterminate amount of ammonium thioglycolate (a home permanent neutralizer). Immediately after ingestion of it, the boy gagged, coughed, and vomited; he was cyanotic for three or four days. About two weeks later laryngoscopy revealed an inflammatory reaction of the larynx, trachea, and bronchi. About one year after ingestion of the poison he developed thinning and atrophy of the tongue. His voice is squeaky, and he has some hoarseness when he talks loudly. When he cries he sometimes has laryngeal stridor. What is the expected end-result of this scarring of the tongue and larynx?*

Howard Hansen, M.D., Baton Rouge, La.

Answer.—About a year ago, potassium bromate was being used as a neutralizer, but this was discontinued because of two or three reported deaths from the solution, and sodium perborate is now used as a neutralizer. The thioglycolate mentioned is found in the wave solution, but the caustic effect of this material has not been determined. The solution ingested caused a definite burn of the larynx and has apparently resulted in some laryngeal stenosis. It is unlikely that the thinning of the mucosa of the tongue would have any serious effect either in the immediate or distant future. It may be assumed that the patient had some loss of mucosa in the laryngeal area and as a result has obtained a fusion of the anterior commissure which has resulted in the high-pitched squeaky voice and hoarseness; it would also cause some stridor on breathing after unusual exertion. Since it has been one year since the accident, it is unlikely that the condition will progress beyond its present stage, and, as the child grows older, the size of the larynx would be expected to increase with his general growth, possibly not proportionately, but still sufficiently to allow him to avoid respiratory difficulty. The course of the condition should be followed with direct laryngoscopic visualization, first, to determine the exact condition of the larynx and, second, to have a standard for comparison in subsequent examinations.

MUSCLE REEDUCATION

To the Editor:—*I once attended a meeting at which Sister Kenny described her method of treating patients with paralytic poliomyelitis. She stressed the value of awareness or incentive on the part of the patient as the paralyzed muscles were passively put through their functional range of motion by the attendant after the hot packs had been used. She applied a special term, which I cannot recall, to this mental effort by the patient. Was this idea of conscious effort to move a paralyzed part during the passive exercise ever accepted by the medical profession?*

M.D., California.

Answer.—The Kenny method of muscle reeducation is divided into three phases. The first phase is tendon stimulation. This is an attempt to produce proprioceptive reflexes by passive motion of the joints normally moved by the affected muscles. It is done by several techniques, all of which involve stimulation of sensory proprioceptive endings to produce motor effects, and it is strictly a reflex action.

The second phase is restoration of mental awareness. This phase is probably the one mentioned in the question. In this technique the attempt is made to make the patient aware of the function of the muscle by using every type of sensory stimulation available. The normal motor pattern is reproduced by passive motion which involves proprioceptive stimuli. The skin is stroked over the insertion of the muscle to utilize tactile stimuli. The origin, insertion, and action of the muscle is described to the patient to provide auditory stimuli. The patient is allowed to watch the motion being performed passively to supply visual stimuli. All of these procedures are performed without the patient making any attempt at active motion. Fundamentally it is an attempt to reeducate the sensory side of the motor pattern.

The third phase is restoration of muscle function. At this time the patient first attempts to move the part voluntarily with assistance. Great care is taken to avoid substitution of other muscles

in the motor pattern and to avoid tiring the patient during this reeducation process. As the patient develops more power and coordination he is allowed to do more for himself until he is able to perform the motion independently. This phase is an attempt to reeducate the motor side of the motor pattern. The technique is described more fully in the chapter Exercise in Poliomyelitis in "Therapeutic Exercise," volume 3 of the Physical Medicine Library, published by Elizabeth Licht, New Haven, Conn. It is used with some modifications in many poliomyelitis centers.

CHLORAMINES IN SWIMMING POOL

To the Editor:—*The water in a swimming pool is treated with chlorine soda ash and filtered through pressure sand filters. The pH of the water is maintained between 7.8 and 8.0, and the chlorine content varies from 0.8 to 1.0 ppm. When water is treated with chlorine, one of the by-products is nitrogen trichloride, an insoluble gas that tends to lay close to the water surface. This gas is irritating to the eyes of the varsity swimmers, who are taught to skim the surface, swimming with their eyes open. There have been no complaints from the womens' physical education class or other swimmers of the pool. Sufficient ventilation to remove this gas would be prohibitive not only in terms of cost of ventilation equipment but in terms of heating the air supply. What measures will prevent the eyes from burning due to exposure to this water?*

M.D., Nebraska.

Answer.—The analysis made of the reasons for the difficulties being experienced is not factual. In pool waters which contain ammonia, the addition of chlorine will cause the formation of chloramines. The particular chloramine depends on the pH of the pool water. At the pH level being maintained in this particular pool there is little likelihood that the trichloramine nitrogen trichloride will be formed. Trichloramine production would require a pH of about 4.5 to 5.0.

Studies on this problem indicate, however, that the monochloramines and dichloramines are eye irritants and may be responsible for the difficulties being experienced in this particular pool. Studies have indicated further that by the application of break-point chlorination, the chloramines can be eliminated with the formation of nitrogen and the oxides of nitrogen. This requires the maintenance of a pH of about 8.0 with a free residual chlorine of 2 to 3 ppm. A number of articles have been written on this subject. One article by Eric W. Mood appeared in the *American Journal of Public Health* (43:1258-1264 [Oct.] 1953). Mr. Mood has been highly successful in eliminating eye irritation among the varsity swimmers at Yale University by the application of this type of treatment to their pool water. Many others have confirmed his findings.

SPONTANEOUS ABORTION

To the Editor:—*Please comment on proper hospital routines for patients who have had a spontaneous abortion. What routine orders should be given to the nursing staff to prevent pelvic infection? May patients safely be placed in a room or ward with other patients with infectious diseases, such as pelvic inflammatory disease?*

M.D., Missouri.

Answer.—Most patients who have had a spontaneous abortion experience an uneventful afebrile convalescence, but it is not always possible to determine whether such persons have been subjected to manipulations to induce the abortion, with the increased likelihood of puerperal infection. A patient who has had an abortion should not be placed in the same room with a recently delivered mother nor should she be exposed to a gynecologic patient with subacute or acute pelvic inflammation. The patient who is febrile on admission, prior to the spontaneous abortion, or who develops fever should be isolated outside the clean maternity sections. She should be treated in the same way as a delivered mother who develops puerperal infection.

POSTHERPETIC PAIN

To the Editor:—*About five years ago, an 82-year-old woman, after an attack of herpes zoster at the level of the hemithorax and the right arm, developed a persistent pain in the right arm. At times her pains become so intense that she had to use ketobemidone for relief. The skin of the inner side of her arm and forearm is hypersensitive, wrinkled, and dry, and the hand has remained edematous for nearly two years, not permitting any movement of the fingers because of the pain. Roentgenograms of the hand showed ankylosis of practically all joints Since the onset, sodium salicylate, piperazine, ACTH, cortisone, vitamin B_{12}, and procaine have been used but without relief. Can you suggest any treatment for this patient? What case fatality rate attends surgical treatment?*

Harry Kalenscher, M.D., Flushing, N. Y.

Answer.—Postherpetic pain is always difficult to treat and sometimes cannot be affected by any known treatment. In some patients it responds well to section of the peripheral nerve or relevant posterior nerve roots. In others, there has been some response to stilbamidine and large doses of vitamin B. The age of the patient in question seems to contraindicate radical surgery, yet local block of the thoracic nerve concerned may provide relief.

If regional block with procaine gives relief, one might consider a simple section of the thoracic nerve with the patient under local anesthesia. Sometimes such sections at the periphery cure or greatly ameliorate the pain. If this procedure fails, a posterior root section might be considered. The morbidity and mortality with such a procedure is low, although it would be somewhat higher in an elderly person. In competent hands, the procedure is short and may even be performed with the patient under local anesthesia, if general anesthesia is contraindicated.

SERUM AMYLASE

To the Editor:—*A patient has a consistently elevated serum amylase level (175 to 200 units per 100 ml.). The normal for the laboratory is up to 110. I am unable to find a cause for this. He complains of pain in the left parotid gland, which at times appears to be slightly enlarged, but he has not been febrile and has no manifest parotitis. Are there other causes of elevated serum amylase level besides inflammation of the pancreas and parotid gland?*

M.D., Illinois.

Answer.—Moderate elevations of serum amylase, that is, to levels from 200 to 700 units per 100 ml., may be found in such conditions as peptic ulcers penetrating or perforating into the pancreas, calculous obstruction of the salivary duct, renal insufficiency due to chronic or acute glomerulonephritis, chronic pancreatitis with a relapse involving previously unaffected tissue, and sometimes carcinoma of the pancreas. Apparently this patient has no renal insufficiency. Since he does complain of pain in the left parotid gland and shows occasional enlargement of this gland, the possibility of a small calculous obstruction of the salivary duct might be considered first.

SIMPLE CHRONIC ANEMIA

To the Editor:—*In reply to the question on simple chronic anemia, which appeared in* The Journal, *Sept. 13, 1958, page 227, the consultant stated, "The anemia will not respond to the administration of iron, vitamin B_{12}, folic acid, or any of the 'shotgun' antianemic preparations which, unfortunately, flood the pharmaceutical market." This appears to be an overstatement of facts. It may be asked on what basis the consultant concluded that none of these hematinics or a combination thereof would help the patient. In tropical countries, it is known that the iron taken in food often is not absorbed. Much of what is absorbed is excreted in the perspiration, and there are other nutritional deficiencies that are amenable to one or more of these hematinics or to a combination thereof, as in dimorphic anemias. Horrigan and co-workers* (Am. J. Med. **22**:99, *1957) found that in hyperferricemia none of the other hematinics helped until liver was given orally.*

K. S. Dharadhar, M.D.
P. O. Box No. 229
Bombay 1, India

The above comment was referred to the consultant who answered the original question, and his reply follows.—Ed.

To the Editor:—*The statement that none of these hematinics or a combination thereof would help the patient was based on the assumption, justified from the data provided, that if the patient had anemia at all it was of the simple chronic variety. This subject is beautifully discussed and documented, in terms of pathogenesis and treatment, by Wintrobe (Clinical Hematology, ed. 4, Philadelphia, Lea & Febiger, pp. 581-588). The original answer is entirely consistent with the views expressed by Wintrobe. The comment states that in tropical countries the iron taken in food often is not absorbed. Though this consultant has studied iron metabolism for years and is familiar with most of the literature on iron absorption, no studies have been seen that justify that statement. They would depend on careful balance studies or measurements with radioactive iron. If the commenting physician knows of such a published work, a reference to it would be appreciated. The question is hardly applicable to the specific case being discussed, however, since there was no evidence of iron deficiency.*

The comment further states that a lot of iron is excreted in the perspiration. Foy and Kondi offer evidence to indicate that there is a dermal loss of iron in the tropics from desquamation of epithelial cells (not in perspiration, per se), but even their work has not entirely eliminated iron contamination from the environment. Even if one accepts their work at face value, the fact remains that there is no evidence to indicate that persons with simple chronic anemia in the United States are iron-deficient or will respond to the administration of iron. The correspondent states that there are other nutritional deficiencies that are amenable to one or more of these agents or sometimes to a combination thereof as in dimorphic anemias. This is true, as Wintrobe also states, but the values given in the original inquiry would not be low enough for a dimorphic anemia. Even though one may have mild degrees of anemia in various nutritional disturbances, such as thiamine deficiency and pellagra, the use of a shotgun preparation is still not justified. The observations of Horrigan and co-workers are accepted without reservation. The situation must, however, be rare. This consultant knows of no cases other than those reported by him or to which he refers.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY-APRIL 1959

Abstracts have been made of important articles in the following journals in the Current Medical Literature Department of THE JOURNAL during the past four months. Any of the journals, except those starred, will be lent by the Library of the American Medical Association to individuals in Continental United States and Canada who subscribe to its scientific periodicals and to members of the American Medical Association and its student organization. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each periodical. Three journals may be borrowed at a time for a period not exceeding five days. Thus most of these journals are accessible to the general practitioner.

*A. M. A. Archives of Dermatology. Chicago.
*A. M. A. Archives of Industrial Health. Chicago.
*A. M. A. Archives of Internal Medicine. Chicago.
*A. M. A. Archives of Neurology and Psychiatry. Chicago.
*A. M. A. Archives of Ophthalmology. Chicago.
*A. M. A. Archives of Otolaryngology. Chicago.
*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago.
*A. M. A. Journal of Diseases of Children. Chicago.
Acta allergologica. Copenhagen.
Acta chirurgica italica. Padova.
Acta chirurgica scandinavica. Stockholm.
Acta clinica belgica. Brussels.
Acta dermato-venereologica. Stockholm.
Acta endocrinologica. Copenhagen.
Acta medica scandinavica. Stockholm.
Acta orthopaedica scandinavica. Copenhagen.
Acta paediatrica. Uppsala.
Acta psychiatrica et neurologica scandinavica. Copenhagen.
Acta radiologica. Stockholm.
Acta tuberculosea scandinavica. Copenhagen.
American Heart Journal. St. Louis.
American Journal of Cardiology. New York.
American Journal of Digestive Diseases. New York.
American Journal of Gastroenterology. New York.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Chicago.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Psychiatry. Baltimore.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Review of Tuberculosis. New York.
American Surgeon. Baltimore.
Anaesthesia. London.
Anales de la Facultad de medicina de Montevideo. Montevideo.
Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
Annales paediatriae Fenniae. Helsinki.
Annals of Allergy. St. Paul.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Applied Microbiology. Baltimore.
Archiv für Gynäkologie. Munich.
Archiv für Kinderheilkunde. Stuttgart.
Archiv für klinische Chirurgie. Berlin.
Archives of Disease in Childhood. London.
Archives françaises de pédiatrie. Paris.
Archives of Physical Medicine and Rehabilitation. Chicago.
Archivos argentinos de pediatria. Buenos Aires.
Archivum chirurgicum neerlandicum. Arnhem.
Australasian Annals of Medicine. Sydney.
Beiträge zur klinischen Chirurgie. Munich.
Belgische tijdschrift voor geneeskunde. Leuven.
Bibliotek for laeger. Copenhagen.
Blood. New York.
Boletin de la Asociación médica de Puerto Rico. Santurce.
British Journal of Industrial Medicine. London.
British Journal of Ophthalmology. London.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis and Diseases of the Chest. London.
British Journal of Urology. Edinburgh.
British Journal of Venereal Diseases. London.
British Medical Journal. London.
Bulletin of Experimental Biology and Medicine. (Translated from Russian). New York.
Bulletin of the Georgetown University Medical Center. Washington, D. C.
Bulletin of the Los Angeles Neurological Society. Los Angeles.
Bulletin of the Mason Clinic. Seattle.
California Medicine. San Francisco.
Canadian Journal of Public Health. Toronto.
Canadian Journal of Surgery. Toronto.
Canadian Medical Association Journal. Montreal.
Cancer. Philadelphia.
Cancer Research. Chicago.
Chinese Medical Journal. Peking.
Chirurg. Berlin.
Chirurgia. Milan.
Chirurgia toracica. Rome.
Circulation. New York.
Clinica. Bologna.
Clinica pediatrica. Bologna.
Clinical Science. London.
Connecticut Medicine. New Haven.
Danish Medical Bulletin. Copenhagen.
Deutsche medizinische Wochenschrift. Stuttgart.
Diabetes. New York.
Diseases of the Chest. Chicago.
East African Medical Journal. Nairobi.
Electroencephalography and Clinical Neurophysiology. Montreal..
Fertility and Sterility. New York.
Finska läkaresällskapets handlingar. Helsinki.
Gastroenterology. Baltimore.
Geburtshilfe und Frauenheilkunde. Stuttgart.
German Medical Monthly. Stuttgart.
Giornale di clinica medica. Bologna.
Harefuah. Tel-Aviv.
Hawaii Medical Journal. Honolulu.
Helvetica medica acta. Basel.
Indian Journal of Surgery. Madras.
Industrial Medicine and Surgery. Chicago.
Journal of Allergy. St. Louis.
Journal of the American Dietetic Association. Chicago.
Journal of the American Medical Women's Association. New York.
Journal of Bone and Joint Surgery. Boston and London.
Journal of Chronic Diseases. St. Louis.
Journal of Clinical Endocrinology and Metabolism. Springfield, Ill.
Journal of Clinical Investigation. New York.
Journal of Clinical Pathology. London.
Journal of the Florida Medical Association. Jacksonville.
Journal of Histochemistry and Cytochemistry. Baltimore.
Journal of the Indian Medical Association. Calcutta.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Irish Medical Association. Dublin.
Journal of the Kentucky State Medical Association. Louisville.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal-Lancet. Minneapolis.
Journal of the Louisiana State Medical Society. New Orleans.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of Medical Society of New Jersey. Trenton.
Journal of Microbiology, Epidemiology and Immunology. (Translated from Russian). New York.
Journal of the National Cancer Institute. Washington, D. C.
Journal of Nervous and Mental Disease. Baltimore.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Experimental Neurology. New York.
Journal of Obstetrics and Gynaecology of the British Empire. London.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics. St. Louis.
Journal of the Philippine Medical Association. Manila.
Journal of South Carolina Medical Association. Florence.
Journal of Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal of Urology. Baltimore.
Khirurgiya. Moscow.
Lancet. London.
Laryngoscope. St. Louis.
Lyon chirurgical. Paris.
Maandschrift voor kindergeneeskunde. Leyden.
Maryland State Medical Journal. Baltimore.
Medical Annals of the District of Columbia. Washington, D. C.
Medical Journal of Australia. Sydney.
Medical Proceedings. Johannesburg.
Medical Services Journal, Canada. Ottawa.
Medicina. Buenos Aires.
Medicina clinica. Barcelona.
Medicina contemporânea. Lisbon.
Medicine. Baltimore.
Minerva cardioangiologica. Turin.
Minerva chirurgica. Turin.
Minerva ginecologica. Turin.
Minerva medica. Turin.
Minerva pediatrica. Turin.
Minnesota Medicine. St. Paul.
Monatsschrift für Kinderheilkunde. Berlin.
Münchener medizinische Wochenschrift. Munich.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Amsterdam.
Neurology. Minneapolis.
New England Journal of Medicine. Boston.
New York State Journal of Medicine. New York.
Nordisk medicin. Stockholm.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
Novy khirurgicheskiy arkhiv. Kiev.
Obstetricia y ginecologia latino-americanas. Buenos Aires.
Obstetrics and Gynecology. New York.
Omnia medica. Pisa.

Omnia therapeutica. Pisa.
Pediatrics. Springfield, Ill.
Physiological Journal of the USSR. New York.
Plastic and Reconstructive Surgery. Baltimore.
Policlinico (sezione chirurgica). Rome.
Policlinico (sezione pratica). Rome.
Postgraduate Medicine. Minneapolis.
Postgraduate Medical Journal. London.
Presse médicale. Paris.
Problemi endokrinologii i gormonoterapii. Moscow.
Problems of Virology. (Translated from Russian). New York.
Proceedings of the Royal Society of Medicine. London.
Psychiatric Quarterly. Utica.
Public Health Reports. Washington, D. C.
Quarterly Bulletin of Northwestern University Medical School. Chicago.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven.
Radiology. Syracuse, N. Y.
Revista de la Asociación médica argentina. Buenos Aires.
Revista brasileira de medicina. Rio de Janeiro.
Revista clínica española. Madrid.
Revista do Hospital das clínicas. São Paulo.
Revista española de pediatría. Saragossa
Revista de investigación clínica. Mexico, D. F.
Revista médica del Hospital General. Mexico, D. F.
Riforma medica. Naples.
Rivista di clinica pediatrica. Florence.
Schweizerische medizinische Wochenschrift. Basel.
Science. Washington, D. C.
Scottish Medical Journal. Glasgow.
Sea View Hospital Bulletin. New York.
Semaine des hôpitaux de Paris. Paris.
Semana médica. Buenos Aires.
Settimana medica. Florence.
South African Medical Journal. Cape Town.
Southern Medical Journal. Birmingham, Ala.
Surgery. St. Louis.
Surgery, Gynecology and Obstetrics. Chicago.
Texas State Journal of Medicine. Austin.
Thorax. London.
Tidsskrift for den norske laegeforening. Oslo.
Tórax. Montevideo.
Transactions of the Royal Society of Tropical Medicine and Hygiene. London.
Tubercle. London.
Tuberkulosearzt. Stuttgart.
Tumori. Milan.
Ugeskrift for laeger. Copenhagen.
Ulster Medical Journal. Belfast.
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°Cannot be lent.

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The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "ab," abstracts; the asterisk (*) indicates an original article in THE JOURNAL. Page numbers in the index refer to the bold face numbers in the text.

This is a subject index and one should, therefore, look for the subject word with the following exceptions: Foundations, Lectures, Moving Pictures, and Prizes, under "F," "L," "M," and "P" respectively. "Book Reviews," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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SOCIETIES AND OTHER ORGANIZATIONS

Acad.—Academy *Indust.—Industrial*
Am.—American *Inst.—Institute*
A.—Association *Internat.—International*
Coll.—College *M.—Medical*
Commn.—Commission *Med.—Medicine*
Comm.—Committee *Nat.—National*
Conf.—Conference *Pharm.—Pharmaceutical*
Cong.—Congress *Phys. Physicians*
Dist.—District *Soc.—Society*
Div.—Division *Surg.—Surgery*
Found.—Foundation *Surgs.—Surgeons*
Hosp.—Hospital *S.—Surgical*

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